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# THE EFFECTS OF VOCALICS AND NONVERBAL SENSITIVITY IN A PERSUASIVE INTERACTION: A REPLICATION AND EXTENSION

by

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ABSTRACT

THE EFFECTS OF VOCALICS AND NONVERBAL SENSITIVITY IN A PERSUASIVE INTERACTION: A REPLICATION AND EXTENSION

By

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A theoretical formulation is offered to explain the effect of a disordinal interaction between vocalic decoding ability and voice tone condition on compliance, reported by Hall (1980). Poor decoders were predicted to be negatively biased toward and develop negative initial impressions of unknown communicators while good decoders were predicted to be positively biased toward and develop positive initial impressions of unknown communicators. These different predispositions and impressions affect reaction toward communicator voices which either conform to social norms (i.e., neutral) or violate these norms (i.e., pleasant or hostile). Poor decoders were predicted to comply more when encountering a neutral voice and less when encountering a pleasant or hostile voice, and good decoders were predicted to comply less when encountering a neutral voice and more when encountering a pleasant or hostile voice.

In a replication and extension of Hall's methodology, 206 respondents, pretested on vocal decoding ability, need for affiliation, sensitivity to rejection, and communication reticence, were interviewed by interviewers trained to encode either neutral, pleasant or hostile voices. Compliance was assessed by asking for a donation of hours to communication research. Follow-up interviews, by different

interviewers, assessed perceived relational messages, voice image and credibility of the experimental interviewers. Interviewer voices were recorded during each experimental interview and groups of judges rated their vocal characteristics.

None of the hypotheses were confirmed, though the interaction reported by Hall was replicated in the neutral and pleasant voice conditions. The vocal portion of the Profile of Nonverbal Sensitivity (Rosenthal et al., 1979) was extremely unreliable, invalidating tests of the hypotheses. The decoding test contained two weak factors which may have resulted from the pairings of correct and incorrect responses. What is actually measured by this scale and how to construct a reliable test of vocalic sensitivity is discussed. Vocalic cues did affect relational message, voice image and source credibility perceptions. Relational message perceptions were also affected by the cognitive style of the respondents. Implications of the nonsignificant results for telephone public opinion surveys are also discussed.

To Mary

Who married me in spite of this not being completed

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# CHAPTER 1: Rationale

Vocal behavior in persuasive messages has been of interest to communication scholars and practitioners for many years. This interest has focused on characteristics such as fluency (McCroskey & Mehrley, 1969), opinionated language (Miller & Basehart, 1969), vocal characteristics (Addington, 1971), and vocal synchrony (Woodall & Burgoon, 1981), to name a few. Recently, Hall (1980) examined the impact of vocalic encoding and decoding ability on persuasion. Her results are interesting, because they unexpectedly showed that only decoding ability was related to compliance. Further, few specific vocalic cues were related to compliance. These findings challenge the seemingly implicit assumption in past research that the source's behavior is more important to persuasive efficacy than the receiver's behavior. The experiment proposed herein is designed to further examine this decoding effect with the goals of (1) formulating a theoretical explanation for the decoding effect, (2) replicating the superiority of the decoding effect using an improved experimental design, and (3) testing predictions of the theoretical rationale.

## Overview of Hall's Study

Hall's experiment combined both laboratory and survey methods, using two groups of subjects. The first served as telephone interviewers (encoders) and the second as survey respondents (decoders). The experimental questionnaire assessed the number of hours the respondents were willing to donate to psychological research. In one persuasive condition, the 11 callers were instructed to attempt to obtain a donation of as much time as possible, and in the other

persuasive condition as little time as possible. They were limited to only manipulating their vocal cues as they read the questionnaire. A total of 43 respondents completed the questionnaire.

Callers were chosen based on their pretested vocal encoding abilities. This pretest consisted of reciting a neutral sentence[1] while varying vocal cues to suit one of eight scenarios which differed on two dimensions -- positivity-negativity and dominance-submission. The eight statements encoded by each of 34 potential callers were rated by 66 judges who attempted to identify the scenario being encoded. This procedure was adapted from the Profile of Nonverbal Sensitivity (PONS) test (Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). The five highest and six lowest callers in encoding ability were used in the experiment.

Half a semester prior to the interviewing period, respondents were pretested using (1) a 40-item audio portion of the PONS test and (2) the first quarter of the interviewers' voice recordings from the encoding pretest.

Interviewers conducted short telephone surveys which assessed basic demographics and how many hours the respondents would be willing to participate in psychological research during the current semester, on a scale of 0 to 20 hours. Each caller made four calls, two in each persuasive condition. In each condition, the interviewer talked to one good and one poor decoder. Tape recordings of each call were made. The 43 calls (one was lost due to technical error) were rated by 25

judges on seven dimensions: (1) dominant-submissive, (2) consistent-inconsistent, (3) expressive-inexpressive, (4) fast-slow, (5) anxious-calm, (6) natural-stiff, and (7) cold-warm.

Results revealed a significant, disordinal decoding ability by persuasion condition interaction. The good decoders responded in the direction intended by the interviewers, while the poor decoders responded in the opposite direction.[2] Significant differences in vocal cues due to encoding ability, though present, had no effect on compliance. The interaction of decoding ability and persuasive condition was the overriding effect in this study.

Hall claimed responses of the good decoders were expected and caused by accurate decoding of the vocal cues; however, the reversal by poor decoders was not readily explainable. She speculated that poor decoders do actively process nonverbal cues, as evident from their differential responses to the two persuasion conditions, but due to unpleasant experiences with decoding nonverbal cues in past interactions, poor decoders become defensive when placed in situations where nonverbal cues are displayed. This defensiveness causes them to purposely act in a manner contrary to the message. Conversely, with voices that are more reserved (contain fewer vocalic cues) or business-like, poor decoders are less defensive and more cooperative with requests.

While this, to some extent, may be an accurate explanation, Hall offers no empirical support for it. One could argue that, even in the reserved, business-like voices, nonverbal cues are being manipulated by encoders and received by decoders. If poor decoders react negatively to displays of nonverbal cues, then why did they donate more hours in response to this type of vocal pattern? The explanation may lie in the labelling processes which decoders engage in when encountering communication situations and communication behavior of any kind. Recently developed communication theories concern just such differential labelling processes and seem to provide a plausible alternative explanation for Hall's results.

Theoretical Alternative

Early research on vocalic cues associated with persuasion showed that expressive, calm, warm and pleasant vocal patterns, like those exhibited by Hall's encoders when attempting to obtain larger donations, generally are associated with perceptions of high source credibility (Addington, 1971; Burgoon & Saine, 1978; Pearce & Conklin, 1971). Further, these cues are correlated with increased attractiveness ratings (Pearce & Conklin, 1971). Conversely, stiffer vocal patterns generally reduce perceptions of credibility and attractiveness. These credibility and attractiveness effects may explain the behavior of the good decoders; however, the reactions of the poor decoders are puzzling. If increases in credibility and

attraction did occur, why did poor decoders not react in the same manner as good decoders?

Pearce and Brommel (1972) provide results which begin to answer this question. In their study the initial credibility of the speaker interacted with her/his vocal pattern to produce different attitude change results. Specifically, a low credible speaker produced more attitude change when using a conversational vocal pattern than when using a dynamic vocal pattern. Conversely, a high credible speaker produced more attitude change when using a dynamic vocal pattern. It is particularly interesting that the descriptions of the voices indicate the conversational pattern appears to contain some inexpressive characteristics similar to the vocal patterns employed in Hall's low persuasion condition, while the dynamic delivery contains some of the same expressive characteristics employed in Hall's high persuasion condition.

This credibility interaction is not unique to Pearce and Brommel's study. J. Burgoon and her colleagues (Burgoon, 1978; Burgoon & Jones, 1976; Burgoon, Stacks, & Burch, 1982; Burgoon, Stacks, & Woodall, 1979; Woodall & Burgoon, 1981) have shown that initial perceptions of the attractiveness or credibility of a speaker differentially affect the perceptions and outcomes of other nonverbal behaviors. They demonstrated that initial perceptions produce different expectations of appropriate nonverbal communicative behavior by high and low attractive or credible communicators. Violations of these nonverbal expectations

affect not only perceptions of the communicator but, in persuasive situations, attitude change. Specifically, a violation by a highly attractive or credible communicator is likely to result in more positive perceptions and more attitude change, while a similar violation by an unattractive or low credible communicator is likely to result in more negative perceptions and less attitude change (Burgoon et al., 1982; Stacks & Burgoon, 1981). Of special interest is the finding that the type of violation seemed unimportant, rather the mere presence of an unexplained violation was sufficient to produce perceptual changes. The distracting nature of these violations is thought to direct attention to speaker characteristics and enhance the credibility effects (Buller, 1983). It appears that, in an attempt to explain the unexpected behavior by the speaker, the receiver makes attributions based on the perceived credibility of the speaker.

It does not seem inappropriate to assume that expectations of normative vocal behavior exist. Miller and Basehart (1969) reported attitude change results consistent with this credibility effect when manipulating opinionated language use and trustworthiness of the speaker. Further, work by M. Burgoon and his colleagues has shown that receivers form expectations about appropriate language behavior (cf. Burgoon, Cohen, Miller & Montgomery, 1978; Miller & Burgoon, 1979). These language behavior expectations may encompass an expectation of appropriate nonverbal vocalic behavior as well. It appears plausible that people have a socially shared norm for neutral,

unbiased vocalic behavior by callers who are conducting a public opinion survey. Persuasive vocalic patterns that depart from a professional, inexpressive, business-like manner may be perceived as violations of this norm, leading to outcomes like those suggested by the violations of expectations model and observed in Hall's experiment.

The efficacy of this model depends upon the assumption that good decoders make different initial perceptions of an interviewer's credibility or personality than poor decoders. Further, good decoders must perceive the interviewer as attractive and/or credible, while poor decoders must perceive her/him as unattractive and/or noncredible. Is such an assumption valid? Related research on correlates of nonverbal sensitivity suggests that it may be. DePaulo and Rosenthal have identified a pattern of behavior by good decoders which they label the accommodation effect (DePaulo, 1981; DePaulo & Rosenthal, 1979; Rosenthal & DePaulo, 1979). They describe this effect as a learned tendency by communicators with high nonverbal sensitivity to behave as if they do not possess this superiority. DePaulo (1981) and Rosenthal and DePaulo (1979) provide evidence which shows that women, who are reported to be more superior to men in sensitivity, (1) lose their superiority over men when decoding cues of brief duration, (2) are superior decoders primarily in those channels which are less likely to leak unintended, uncontrolled cues, (3) are less likely to "eavesdrop" on leaky nonverbal channels, (4) are more likely to focus on the positive meanings in nonverbal communication, (5) may be less accurate

when decoding the less positive, less controlled cues, (6) are substantially less accurate when decoding deceptive cues, and (7) are more likely to believe the intentionally encoded cues. Rosenthal and DePaulo (1979) also report a tendency for good decoders to exhibit more affiliative behavior than poor decoders. Further, interpersonally supportive individuals are usually more nonverbally sensitive than nonsupportive individuals. Conversely, poor decoders are likely to experience more social anxiety than good decoders.

These results suggest that good decoders may be more likely to focus on the positive cues in a message and to perceive potential communication and communicators positively. Conversely, poor decoders may be inherently more suspicious communicators, focusing on negative cues and making negative attributions about potential communication and communicators. This would lead good decoders to positively label violations of nonverbal expectations, and poor decoders to negatively label these same violations. Hence, respondents in Hall's study may have considered the low compliance voice to be normative while the high compliance voice was a violation of respondent expectations. Positive perceptions of a source who violated this vocalic expectation by good decoders produced greater donations, but negative perceptions of a similar violating source by poor decoders caused lower donations.

These predispositions findings seem to correspond with a personality trait, need for affiliation (Mehrabian & Zsionzky, 1974). This trait is linked to a greater desire among some individuals to

interact with others. It is manifested in more frequent communication with others and more positive perceptions of the possibility for and benefits of communicating with others. Further, a related trait -- sensitivity to rejection -- involves a tendency among some individuals to avoid such interactions and to express negative expectations about potential communication and communicators. Hall's original speculation that good and poor decoders would have different expectations about communication with others due to the rewards obtained from past communication experiences may suggest the same trait. Whether or not this is an inherent or learned predisposition, good decoders should possess a higher need for affiliation, while poor decoders should exhibit a higher sensitivity to rejection. Further, the accommodation effect may be a manifestation of the affiliative tendency of good decoders. Their interpersonally supportive nature and tendency to decode positive cues may serve to improve the quality of their interpersonal interactions. DePaulo (1981) speculates that superior decoding ability may be a hindrance to the establishment of high quality relationships; hence, the good decoder compensates. On the other hand, poor decoders may find communication with others less satisfying; therefore, they experience more anxiety when interacting with others, display a generalized negative predisposition toward all facets of the communication process, and make no attempt to be interpersonally supportive.

A prominent communication variable, communication reticence, also may predict this negative reaction among some individuals. A person's fear of engaging in communication with others has been well documented and identified as a potent influence on communication behavior and perceptions of other communicators (cf., Burgoon & Koper, 1984, for an excellent review of this research). Specifically, communication reticent individuals are likely to be less interpersonally responsive, trusting and affectionate than less reticent individuals (Burgoon, 1976; Burgoon & Koper, 1984; McCroskey, Daley & Sorenson, 1976). In addition, Jensen and Andersen (1979) found that apprehensive individuals report lower perceptions of interpersonal immediacy than nonapprehensive individuals. The communication reticence trait appears to be similar to the sensitivity to rejection trait proposed by Mehrabian and Zsionzky (1974). It, too, suggests that some communicators are predisposed toward avoidance of and negative reactions toward communication with others. Of special interest to the interview situation is the finding by Parks (1979) that the communication reticence trait is particularly influential in interactions which involve strangers. The threatening nature of these interactions is believed to exacerbate the reticent individual's anxiety (Burgoon & Koper, 1984; Parks, 1979). It has not been established whether this trait is linked to vocalic decoding ability, but the preceding evidence cited by DePaulo and Rosenthal indicates such a link.

Together, the results of research on correlates of nonverbal sensitivity, need for affiliation, sensitivity to rejection and communication reticence suggest that good and poor decoders will possess different predispositions toward and develop different initial impressions of a communicator. Good decoders will have positive predispositions and impressions, while poor decoders will have negative predispositions and impressions. This seems especially true in a situation where the source is unknown to the decoder, as in a telephone interview. It would be expected that reactions to a stranger would be based largely on stereotypical reactions to communication in general. Add to this the stress and uncertainty created by an unexpectedly biased vocal behavior, and it seems even more likely that predispositions and initial stereotypic impressions would strongly influence the decoders' reactions.

Two final considerations are necessary before testing this formulation. First, the breadth of meanings associated with the display of nonverbal cues must be considered. The discussion, thus far, has focused on only credibility and attractiveness; however, Burgoon and Hale (in press) have identified no less then 12 types of relational messages that can be communicated. Their analysis of these 12 meanings identified four general message types: emotional arousal/composure/formality, dominance-submission, immediacy-nonimmediacy, and intimacy/similarity. Subsequent research with these messages has shown that violations of nonverbal norms or displays of

particular nonverbal cues by strangers produce variations in these messages (Burgoon, Buller, Hale & deTurck, 1984). Further, the preceding discussion of communication reticence suggests that perceptions of relational messages vary based on a person's desire to communicate with others. Thus, it appears improper to claim that perceptions of Hall's interviewers were limited to credibility and attractiveness; rather, a variety of relational messages may have been associated with the observed reactions. In addition, the violations of expectations model has shown that differential results are attributable to general perceptions of the rewarding nature of the communicator (cf., Burgoon & Jones, 1976). Therefore, it seems more appropriate to expand the assessment of the decoders' perceptions of the interviewers to encompass a variety of relational messages, as well as credibility and attractiveness.

Second, the importance of vocalic encoding ability must be considered. It is plausible that encoding ability has an effect on persuasive outcomes even though Hall failed to find it. Good encoders would be expected to be better than poor decoders at intentionally manipulating vocalic cues; however, as the foregoing discussion has outlined, the effects of these cues on Hall's measured variables may have been overridden by receiver perceptions. Hall's small sample size (N=43) may have been inadequate to detect such a small encoding effect, if one occurred. Thus, it would be inappropriate to conclude that encoding ability has no effect on compliance whatsoever. The impact of

the vocalic cues encoded by the interviewers should be very important in explaining this phenomenon. If the decoding interaction is valid, it would be instructive to identify which cues affect the two types of decoders and what meanings are assigned to their display. Good encoders would appear to be best suited for the manipulation of these cues. Their superior encoding abilities should help ensure the quality of the vocalic manipulations and facilitate the identification of consistent relationships between vocalic cues and perceptions of the source and reactions to the request. Though the primary interest here is to make a first attempt at understanding the decoding effect, encoding ability will be included in tests of the decoding by condition interactions to determine what effect if any it has on respondent perceptions and behaviors.

## Hypotheses and Research Questions

The preceding discussion argues that good and poor decoders have different predispositions toward and form different initial impressions of previously unencountered communicators. Specifically, good decoders have positive biases and form favorable first impressions, while poor decoders have negative biases and form unfavorable first impressions. These predispositions will be manifested in differential need for affiliation, sensitivity to rejection and communication reticence. These initial impressions will be evident in differences in the perceived credibility of the source. Respondents' predispositions and impressions affect reactions to vocal behaviors of strangers

(interviewers). If the vocal behavior is neutral, conforming with social norms, poor decoders will perceive it to be more favorable, will perceive the communicator as more favorable and comply with requests more than good decoders. However, when this expectation of a neutral voice is violated by either encoding a pleasant or hostile voice, compliance by poor decoders will decrease, while compliance by good decoders will increase. These reactions are similar to those by communicators faced with violations of proxemic expectations by unattractive (poor decoders) and attractive (good decoders) violators, as reported by J. Burgoon in her violations of expectations model.

This theoretical formulation predicts a decoding ability by persuasive condition interaction effect on compliance like that reported by Hall for the neutral and pleasant voice conditions. The neutral voice tone in this study was designed to correspond to the voice tone used in Hall's low persuasion condition. As noted previously, Hall's description of this voice tone identified it as reserved and business-like (i.e., neutral). The pleasant voice tone in the present study was designed to replicate the voice tone used in Hall's high persuasion condition. The hostile voice tone in the current study, however, does not seem to correspond to those used by Hall. Rather, it is included as a voice negative, as opposed to neutral, on an affective dimension. Reactions to this voice pose a problem for hypothesis development. While it could be that a hostile voice will produce less compliance for all groups, the violations of

expectations model suggests that less compliance will occur for all decoders only if violations of voice expectations are extreme enough so as to be threatening or are labelled as negative by all receivers. The hostile voice, as encoded in this study, may not achieve such a threat threshold or it may be perceived as positive by receivers who see it as a signal of activation. Hence, the predicted differential reactions to this hostile voice by poor and good decoders is theoretically preferable.

This theoretical formulation suggests the following hypotheses[3]:

H1: As decoding ability increases, need for affiliation increases and sensitivity to rejection decreases.

H2: As decoding ability increases, communication reticence decreases.

H3: As decoding ability increases, perceptions of the interviewer's credibility increases.

H4: Good decoders rate the interviewer's vocalic behavior as more positive in the pleasant and hostile voice conditions than in the neutral voice condition, while poor decoders rate the interviewer's vocalic behavior as more positive in the neutral condition than in the pleasant and hostile voice conditions.

H5: Good decoders comply more in the pleasant and hostile voice conditions and less in the neutral voice condition, while poor decoders comply less in the pleasant and hostile voice conditions and more in the neutral voice condition.

To more fully test the theoretical formulation, the following research questions will be examined:

Q1: Will there be differences in the relational messages perceived by good and poor decoders?

Q2: What relational message interpretations are associated with receivers' need for affiliation, sensitivity to rejection, communication reticence, perceptions of credibility, persuasive condition and compliance?

Q3: What vocal characteristics of the interviewers are related to decoding ability, credibility perceptions, relational messages, persuasive condition and compliance?

# CHAPTER 2: Methodology

## Overview

The design, like Hall's, included a combination of laboratory and survey measurement procedures in three waves of data collection. In the first wave, 272 potential respondents were pretested on their ability to decode vocal nonverbal cues, need for affiliation, sensitivity to rejection and communication reticence. In addition, 48 potential interviewers were tested on their vocalic encoding ability, using the pretest employed by Hall. Twenty (20) encoders who scored above the median on the pretest were selected for use as interviewers. These interviewers completed a training session in the technique of neutral voice interviewing; those who conducted the experimental interviews were instructed in encoding pleasant and hostile vocal patterns. In the second wave, 10 interviewers conducted short experimental surveys with 206 pretested respondents. The interviews assessed respondents' attitudes toward communication research participation, including their willingness to donate time to communication research. The experimental interviewers were instructed to encode three persuasive conditions, attempting to obtain as many hours donated as possible (pleasant condition), as few hours donated as possible (hostile condition), and no influence on the hours donated (neutral condition). The interviewer's voice was tape recorded during each interview. Following the experimental interview, the other 10

interviewers conducted follow-up interviews assessing (1) perceived relational messages communicated by the interviewers, (2) perceived appropriateness and evaluation of the interviewers' vocal behaviors, and (3) perceived credibility of the interviewers. Wave three involved ratings of the experimental interviewers' vocal characteristics. Segments of each interview were judged by 146 subjects who had not served as experimental respondents to identify the characteristics of the vocal patterns encoded in each condition.

Wave I

Respondent Pretest. Two hundred seventy-two (272) respondents were pretested on (1) vocal decoding ability, (2) need for affiliation, (3) sensitivity to rejection and (4) communication reticence (Appendix A). This sample size was chosen to guarantee obtaining 210 respondents needed to attain sufficient statistical power, regardless of losses due to refusals and nonresponses.

Decoding ability was measured using the 40-item vocal portion of the Profile of Nonverbal Sensitivity (Rosenthal et al., 1979) which consists of presenting short (1 sec.) segments of filtered vocalic behavior encoded by a female source. Respondents attempt to match the vocalic behavior to a description of the situation in which it was encoded. Respondents choose between two possible situations. Reliability of this scale was very low (alpha=.14, using the standard scoring procedures) (Table 1). A more complete discussion of this reliability problem is presented in the following chapter. Need for

affiliation and sensitivity to rejection were measured using the 26- and 22-item (respectively) Likert-type scales developed by Mehrabian and Zsionzky (1974). Principal axes factor analysis[4] did not reveal a clear factor structure in the combined 50 items; however, unit weighted sums, constructed following Mehrabian and Zsionzky, produced reliable measures of need for affiliation and sensitivity to rejection (alpha=.71 and .67 respectively, Table 1). Communication reticence was meausred by J. Burgoon's (1976) unwillingness-to-communicate scale. This 20-item Likert-type scale generally contains two factors, approach-avoidance and reward. In the present data, three factors were identified by principle components factor analysis; however, reliability on one factor (containing three items) was low (alpha=.60). Thus, the unreliable factor was dropped in favor of two factors, approach-avoidance and reward. These two factors accounted for 36% of the variance and had reliabilities of .85 and .70 respectively (Table 1).[5]

Encoder Testing and Interviewer Training. The encoding ability test consisted of instructing 48 potential interviewers to read a neutral sentence (see Footnote 1) while attempting to encode eight different scenarios which differed on the continua of dominance-submission (D-S) and positivity-negativity (P-N): asking for forgiveness (S,N), returning a faulty item to a store (S,N), ordering food in a restaurant (S,P), expressing gratitude (S,P), criticizing someone for being late (D,N), expressing jealous anger (D,N), admiring

Table 1
Alpha Reliability Estimates

| Scale | Alpha Coefficient |
|---|---|
| PONS Audio (Unreflected Whole Scale) | .14 |
| PONS Audio (Reflected Whole Scale) | .40 |
| PONS Audio (Factor A) | .46 |
| PONS Audio (Factor B) | .38 |
| Need for Affiliation Scale | .71 |
| Sensitivity to Rejection Scale | .67 |
| Unwillingness to Communicate Scale | |
| Approach-Avoidance | .85 |
| Reward | .70 |
| Relational Messages Scale | |
| Emotional Arousal/Composure/Formality | .71 |
| Intimacy | .70 |
| Nonimmediacy | .74 |
| Dominance/Submission | .76 |
| Voice Image Scale | .87 |
| Credibility Scale | |
| Sociability-Character | .89 |
| Extraversion | .74 |
| Competence | .76 |
| Composure | .79 |
| Vocal Characteristics Scale | |
| Pleasantness | .94 |
| Assertiveness | .64 |

nature (D, P), and talking to a lost child (D,P). These scenarios, taken from Hall's design, were intended to represent the optimal level of decoding accuracy, halfway between chance and 100% accuracy[6]. The statements were tape recorded, and decoded by eight groups of subjects ranging in size from 16 to 32 (mean=21.6, N=173). Each group decoded 48 statements (6 encoders), using the PONS procedure of choosing between two possible scenerios. Twenty (20) encoders who scored above the median (5.01) were chosen as interviewers.

Ten interviewers were randomly assigned to serve as experimental interviewers and the other 10 as follow-up interviewers. Neither group had contact with the other so as to prohibit any variation in the experimental interviewers due to knowledge of the follow-up questionnaire. All interviewers completed an interviewer training module. This training consisted of acquainting interviewers with the technique of neutral voice presentation (typical of that used to gather information for public opinion surveys), instruction in interviewing procedure, identification of common mistakes, examination of sample questionnaires, presentation of tape recordings of sample neutral voice tone interviews, and practice interviewing.

Following this training, the experimental inteviewers were instructed in creating pleasant and hostile vocal patterns. Training consisted of presenting tape recordings of pleasant and hostile vocal patterns and instructing the experimental interviewers to approximate the sample interviewers' vocal patterns. The sample vocal patterns

were created by having three experienced interviewers record pleasant, hostile and neutral vocal patterns, after coaching from the experimenter. The initial training in a neutral vocal pattern was designed to provide the experimental interviewers with a comparison condition for assistance in mimicking the pleasant and hostile patterns.

The neutral voice consisted of a consistent tone and rate. Interviewers were instructed to avoid varying their voice tone, except to place slight emphasis on key words in questions. The voice was flat, though not monotone. Pacing was even and of moderate speed. Enunciation was clear and precise. The pleasant voice was warmer, included more tone variation, had a slightly higher overall pitch and was slightly slower than the neutral voice. The enunciation of words was not as precise due to variation in voice tone. Finally, the hostile voice was more tense, had a lower overall pitch and was faster than the neutral voice. Enunciation was so precise as to be clipped. To insure the quality of the experimental manipulations, experimental interviewers practiced each type of voice tone in the presence of the experimenter immediately before completing interviews requiring this tone. They were not permitted to call respondents until the experimenter was satisfied that the desired voice tone was created. Interviewers were also monitored by the experimenter throughout their interviews, especially during their initial interviews in each condition. Responses to the follow-up interviews also were examined to

determine if ratings of the experimental interview voices changed with the introduction of a new voice tone. Based on these evaluations, the experimenter judged that three distinct voice conditions were created. Subsequent manipulation checks confirmed that three distinct voices were created.

Wave II

Survey Procedure. The 10 experimental interviewers each completed 21 experimental interviews (N=206). (Four were lost due to recording errors.) The survey assessed the respondent's willingness to donate time to psychological research, embedded within a series of questions about the respondent's attitudes toward and actual experiences with research participation (Appendix B). The experimental question was placed early in the survey, before attitudes toward research participation were assessed. It was feared that queries about these attitudes prior to the experimental question would confound the vocal manipulation by increasing the salience of these attitudes. Demographic characteristics were recorded at the end of the survey.

The interviews were divided into three conditions (70 hostile, 68 neutral and 68 pleasant). In the pleasant condition, the interviewers were instructed to encode a pleasant vocal pattern in an attempt to obtain a donation of as many hours as possible. In the neutral condition, the interviewers were instructed to encode a neutral vocal pattern, with no attempt to manipulate compliance. In the hostile condition, the interviewers were instructed to encode a hostile vocal

pattern in a effort to obtain a donation of as few hours as possible, without causing the respondent to terminate the interview. Respondents were randomly assigned to interviewers and conditions. Each interviewer completed the neutral voice condition first. This provided a neutral baseline vocal pattern for the persuasive manipulations. Next, the pleasant and hostile vocal conditions were completed. The order of these two conditions was alternated across interviewers. Each interviewer completed seven interviews in one voice condition before beginning another voice condition.

Survey Sample Size. Two hundred six (206) respondents completed the survey. This sample size was sufficient to achieve power coefficients in excess of .80 for medium effect sizes (f-squared=.05-.15; r-squared=.04-.13; r=.20-.36). This medium effect size was considered appropriate for sample size determination, since it required a sample size achievable within practical limitations of the methodology while increasing the power for detection of small effects over that in Hall's previous investigation. For the main effect of persuasion condition and interactions involving this variable, power for tests of medium sized effects was .89 for f-squared=.05 (r-squared=.04; r=.2; df-numerator=2; alpha=.05), .98 for f-squared=.10 (r-squared=.09; r=.30) and .99 for f-squared=.15 (r-squared=.13; r=.36). For main effects of the remaining continuous variables, power for tests of medium sized effects was .89 for f-squared=.05 (r-squared=.04; r=.2; df-numerator=1; alpha=.05), .99 for f-squared=.10

(r-squared=.09; r=.3) and .99 for f-squared=.15 (r-squared=.13; r=.36). Power coefficients used here are suggested by Cohen (1977) and Cohen and Cohen (1975).

Follow-up Interview. A follow-up neutral voice telephone survey was administered to each respondent by one of the 11 follow-up interviewers. A total of 177 respondents completed this follow-up interview. The follow-up interviews were conducted from a separate room during the same evening as the experimental interviews. This survey measured the respondents' perceptions of the experimental interviewers, using (1) a 24-item Likert-type abbreviated version of the relational messages scale (Burgoon & Hale, 1981), (2) a 7-item Likert-type scale assessing the perceived appropriateness and general evaluation of the interviewers' vocal behaviors, and (3) a 15-item source credibility scale (McCroskey, Hamilton & Weiner, 1974; McCroskey, Jensen & Valencia, 1973) (Appendix C).

Principal components factor analysis on the relational messages scale produced four factors, which differed from the four reported by Burgoon and Hale. However, reliability was low for one of these factors (alpha=.60). Thus the four factor structure reported by Burgoon and Hale was used (two items were dropped due to unreliability).[7] These four factors all attained sufficient reliability (Table 1). Principal axes factor analysis revealed that the voice image scale was unidimensional with a reliability of .87. Finally, principal components factor analysis indicated that the

credibility scale consisted of four factors, accounting for 70% of the variance. All four factors attained high reliability (Table 1). The sociability and character factors reported by McCroskey et al. (1974) and McCroskey et al. (1973) collapsed into a single highly reliable factor (Table 2).

At the completion of the follow-up interview, respondents were debriefed, they gave permission to use their responses, and they were reassured that their answers did not constitute actual donation of research time.

Wave III

Vocal Characteristics Assessment. Each experimental interview was tape recorded (42 were lost due to technical malfunction[8], N=168), using a microphone placed in front of the interviewer. Thus, each recording contained only the interviewer's voice. This controlled for possible confounding effects of the respondent's voice and eliminated the need to obtain the respondent's permission to use the recording. Recordings of the first section of each interview, including the introduction, initial questions and experimental question, were dubbed onto a master tape. One hundred forty-six judges rated the voice recordings on the master tape on eight dimensions: dominant-submissive, consistent-inconsistent, expressive-inexpressive, fast-slow, anxious-calm, natural-stiff, cold-warm and pleasant-unpleasant. The judges were divided randomly into 10 groups ranging in size from 12 to

Table 2
Factor Structure of Source Credibility Scale

| | Factor Loadings | | | |
|---|---|---|---|---|
| Sociability-Character: | I | II | III | IV |
| 1. Good natured-Irritable | .72 | .28 | -.13 | .29 |
| 2. Cheerful-Gloomy | .78 | .09 | .07 | .13 |
| 3. Friendly-Unfriendly | .82 | .16 | .01 | .15 |
| 4. Honest-Dishonest* | .46 | .19 | .14 | .32 |
| 5. Sympathetic-Unsympathetic | .65 | .28 | -.23 | .18 |
| 6. Good-Bad | .74 | .32 | .08 | .30 |
| Extraversion: | | | | |
| 1. Bold-Timid | -.10 | -.04 | .65 | .10 |
| 2. Verbal-Quiet | -.02 | .03 | .83 | .02 |
| 3. Talkative-Silent | .08 | .08 | .61 | .12 |
| Competence | | | | |
| 1. Expert-Inexpert* | .19 | .33 | .28 | .47 |
| 2. Intelligent-Unintelligent | .39 | .14 | .18 | .72 |
| 3. Intellectual-Narrow | .37 | .30 | .05 | .56 |
| Composure: | | | | |
| 1. Poised-Nervous | .13 | .54 | .28 | .34 |
| 2. Relaxed-Tense | .35 | .81 | .05 | .09 |
| 3. Calm-Anxious | .30 | .68 | -.14 | .28 |

*though primary factor loading was not in excess of .50, item was included in the final scale, since previous research had shown it loaded on this factor and reliability was sufficient for inclusion

20 (mean=14.6), and each group listened to an average of 17 voices. Each group of judges listened to all the interviews performed by a single interviewer, that is, raters were nested within interviewers.

Principal axes factor analysis on the vocal characteristics scale indicated a two factor structure, accounting for 75% of the variance[9]. The two factors, pleasantness and assertiveness, were identical to Hall's reported factors, except inconsistent-consistent was dropped from the assertiveness scale due to unreliability. Table 1 shows the reliabilities of these two factors. Additionally, Table 3 presents the intraclass correlation of the judges assessing vocal characteristics. This is a measure of the reliability for each item if rated by a single judge (Winer, 1971). These estimates are presented for each group of judges. Table 4 displays the reliability averaged across the judges in each group. These latter reliability estimates are much higher than those for individual raters and indicate that the vocal characteristic ratings produced by groups of raters for each interview were sufficiently reliable for subsequent analyses.

Table 3
Intraclass Correlation Estimates for Individual Judges

| Group | Submissive Dominant | Inconsistent Consistent | Unexpressive Expressive | Slow Fast | Anxious Calm | Stiff Natural | Cold Warm | Unpleasant Pleasant |
|---|---|---|---|---|---|---|---|---|
| 1 | .14 | .03 | .35 | .10 | .10 | .23 | .52 | .39 |
| 2 | .52 | .10 | .16 | .18 | .31 | .61 | .93 | .65 |
| 3 | .30 | .05 | .38 | .08 | .21 | .43 | .99* | .97 |
| 4 | .09 | .11 | .46 | .29 | .47 | .36 | .99* | .91 |
| 5 | .11 | .17 | .09 | .16 | .19 | .14 | .32 | .28 |
| 6 | .99* | .07 | .17 | .88 | .83 | .39 | .35 | .10 |
| 7 | .13 | .06 | .18 | .32 | .16 | .32 | .88 | .80 |
| 8 | .50 | .10 | .15 | .15 | .22 | .51 | .99* | .94 |
| 9 | .10 | .03 | .27 | .12 | .07 | .22 | .48 | .41 |
| 10 | .20 | .07 | .89 | .22 | .23 | .19 | .41 | .47 |
| Mean | .31 | .07 | .31 | .25 | .28 | .34 | .69 | .60 |

*greater than 1.0 due to correction formula (Winer, 1971)

Table 4
Intraclass Correlation Estimates Averaged Across Judges

| Group | Submissive Dominant | Inconsistent Consistent | Unexpressive Expressive | Slow Fast | Anxious Calm | Stiff Natural | Cold Warm | Unpleasant Pleasant |
|---|---|---|---|---|---|---|---|---|
| 1 | .71 | .39 | .86 | .66 | .65 | .81 | .90 | .88 |
| 2 | .91 | .67 | .76 | .78 | .86 | .92 | .95 | .93 |
| 3 | .83 | .45 | .87 | .58 | .76 | .88 | .95 | .94 |
| 4 | .62 | .68 | .89 | .85 | .90 | .88 | .95 | .94 |
| 5 | .64 | .73 | .60 | .72 | .76 | .69 | .84 | .82 |
| 6 | .96 | .57 | .67 | .93 | .92 | .85 | .83 | .60 |
| 7 | .69 | .53 | .76 | .84 | .73 | .85 | .94 | .93 |
| 8 | .90 | .62 | .72 | .72 | .79 | .90 | .95 | .94 |
| 9 | .68 | .38 | .85 | .73 | .61 | .82 | .91 | .90 |
| 10 | .66 | .41 | .89 | .67 | .56 | .64 | .79 | .84 |
| Mean | .76 | .54 | .79 | .75 | .75 | .82 | .90 | .87 |

# CHAPTER 3: Results

## Manipulation Check

Analysis of variance on judges' ratings of the vocal characteristics of these voices showed a significant condition effect for both the pleasantness and the assertiveness factors (Table 5). Scheffe tests revealed that the average pleasantness ratings in each of the conditions were significantly different from one another. However, the average assertiveness ratings in the hostile group differed significantly from those in the other two conditions, but assertiveness ratings in the neutral condition did not differ from those in the pleasant condition. Further, analysis of variance performed on the respondents' ratings of the interviewers' voices (discussed more fully later) showed that the voice condition main effect was significant (Table 11). T-tests indicated that the hostile condition was perceived to be significantly less appropriate and positive than the neutral and pleasant conditions, but ratings of the neutral and pleasant conditions did not differ significantly. Thus, the pleasant condition was seen as more favorable, appropriate and pleasant and less assertive, and the hostile condition was seen as less favorable, appropriate and pleasant and more assertive. The neutral condition was seen as appropriate, favorable, neutral in pleasantness and unassertive. It seems apparent that three distinct voices were produced and tests of the hypotheses were appropriate.

Table 5
Analysis of Variance and Means on Vocal Characteristics*

VOCAL PLEASANTNESS:

| | Voice Condition | | |
|---|---|---|---|
| | Hostile | Neutral | Pleasant |
| Pleasantness | -.77a | -.11b | .99c |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Voice Condition | 94.22 | 2 | 47.11 | 109.96 | <.05 |
| Residual | 76.69 | 179 | .43 | | |

VOCAL ASSERTIVENESS

| | Voice Conditions | | |
|---|---|---|---|
| | Hostile | Neutral | Pleasant |
| Assertiveness | .66a | -.41b | -.28b |

| Source of variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Voice Condition | 42.19 | 2 | 21.10 | 41.43 | <.05 |
| Residual | 91.16 | 179 | .51 | | |

*means reported are based on factor scores where each item was standardized;
means with different letters differ significantly based on Scheffe's test

PONS Vocal Decoding Ability Test

Table 1 also presents the reliabilities for the PONS vocal decoding ability test. Unfortunately, the reliability of the test, using the traditional scoring procedures (unreflected 40-item scale), was .14. Such a low reliability was surprising given the reliabilities reported by Rosenthal et al. (1979) (Table 6). Rosenthal et al's split half reliability for the total scale was .68; however, their test-retest reliability was much lower, .32. The split-half reliability in the present study was even lower, .22. Rosenthal et al. also reported that reliability of the randomized-spliced items was low and lower than the reliability of the content-filtered items. The very low reliabilities in the present experiment indicated the scale contained too much error to perform accurate tests of the hypotheses.

The inter-item correlation matrix of the traditionally scored PONS vocal test had many negative correlations, indicating the possible presence of more than one dimension. Exploratory factor analysis revealed two weak factors (alpha reliability = .46 and .38 (Table 3)) which contained a number of items requiring reflection in the final model (Table 7). Table 8 displays the inter-item correlation matrix[10] and factor loadings for the two dimensions obtained from confirmatory factor analysis. As can be seen, factor loadings were low: neither dimension contained primary loadings above .50. Tests of internal consistency and parallelism (Hunter, 1977)[11] showed that just over 5% of the inter-item correlations deviated significantly from

Table 6
Reliabilities for PONS Vocal Decoding Test

| | Test-retest | Split-half |
|---|---|---|
| Rosenthal et al. (1979, p. 74, 78): | | |
| 40-item scale | .32 | .68 |
| Randomized-spliced | .18 | .06 |
| Content-filtered | .27 | .57 |
| Present Study: | | |
| 40-item scale | -- | .22 |
| Randomized-spliced | -- | .04 |
| Content-filtered | -- | .13 |

Table 7
PONS Responses Classified by Filtering and Affective Ratings

| Correct Response | Coding* | Filtering** | Coding | Incorrect Response |
|---|---|---|---|---|
| Factor 1: | | | | |
| 1. Talking about one's wedding | D+ | RS | D- | Threatening someone |
| 2. Threatening someone | D- | CF | S+ | Expressing gratitude |
| 3. Trying to seduce someone | S+ | RS | S+ | Expressing gratitude |
| 4. Threatening someone | D- | RS | D+ | Talking about one's wedding |
| 5. Talking about one's divorce | S- | CF | S+ | Trying to seduce someone |
| 6. Talking about the death of a friend*** | S- | RS | D- | Criticizing someone for for being late |
| 7. Expressing strong dislike*** | D- | CF | S+ | Expressing gratitude |
| 8. Expressing deep affection*** | S+ | RS | S- | Returning faulty item to a store |
| 9. Helping a customer | S+ | RS | D- | Criticizing someone for being late |
| 10. Expressing gratitude | S+ | RS | S- | Asking forgiveness |
| 11. Talking about one's wedding*** | D+ | CF | D- | Criticizing someone for being late |
| 12. Trying to seduce someone | S+ | CF | S+ | Helping a customer |
| 13. Criticizing someone for being late | D- | RS | D- | Expressing jealous anger |
| 14. Expressing strong dislike | D- | RS | S+ | Ordering food in a restaurant |
| 15. Criticizing someone for being late | D- | CF | D+ | Talking to a lost child |
| 16. Talking about the death of a friend | S- | CF | D+ | Talking to a lost child |
| 17. Expressing jealous anger | D- | RS | S- | Talking about one's divorce |

*D+ = Dominant-Positive; D- = Dominant-Negative;
S+ = Submissive-Positive; S- = Submissive-Negative
**RS = Randomized Spliced; CF = Content Filtering
***indicates item was reflected in factor analysis

Table 7 (cont.)

| Correct Response | Coding* | Filtering** | Coding | Incorrect Response |
|---|---|---|---|---|
| Factor 2: | | | | |
| 18. Nagging a child | D- | CF | D+ | Expressing motherly love |
| 19. Ordering food in a restaurant | S+ | RS | D- | Criticizing someone for being late |
| 20. Talking to a lost child*** | D+ | CF | D- | Expressing jealous anger |
| 21. Talking to a lost child | D+ | RS | S- | Talking about the death of a friend |
| 22. Saying a prayer | S- | RS | D- | Expressing jealous anger |
| 23. Expressing motherly love*** | D+ | RS | S+ | Helping a customer |
| 24. Asking forgiveness*** | S- | CF | D+ | Admiring nature |
| 25. Talking about one's divorce | S- | RS | D+ | Talking about one's wedding |
| 26. Admiring nature*** | D+ | CF | D+ | Leaving on a trip |
| 27. Returning faulty item to a store | S- | CF | S+ | Ordering food in a retaurant |
| 28. Leaving on a trip*** | D+ | CF | S- | Saying a prayer |
| 29. Expressing deep affection*** | S+ | CF | D+ | Talking to a lost child |
| 30. Expressing jealous anger | D- | CF | S+ | Helping a customer |
| 31. Expressing motherly love | D+ | CF | S+ | Expressing gratitude |
| 32. Asking forgiveness*** | S- | RS | D+ | Leaving on a trip |
| 33. Admiring nature | D+ | RS | S+ | Expressing deep affection |
| 34. Returning faulty item to a store*** | S- | RS | D+ | Admiring nature |
| 35. Helping a customer*** | S+ | CF | D+ | Talking to a lost child |
| 36. Ordering food in a restaurant | S+ | CF | S- | Saying a prayer |
| 37. Nagging a child*** | D- | RS | D+ | Expressing motherly love |
| 38. Expressing gratitude*** | S+ | CF | D+ | Expressing motherly love |

*D+ = Dominant-Positive; D- = Dominant-Negative;
S+ = Submissive-Positive; S- = Submissive-Negative
**RS = Randomized Spliced; CF = Content Filtering
***indicates item was reflected in factor analysis

Table 8
Inter-item Correlations and Factor Loadings for PONS Vocal Decoding Ability Test

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .19 | | | | | | | | | | | | | | | | | | | | | | |
| 2 | .26 | .18 | | | | | | | | | | | | | | | | | | | | | |
| 3 | .14 | .09 | .11 | | | | | | | | | | | | | | | | | | | | |
| 4 | .16 | .15 | .09 | .11 | | | | | | | | | | | | | | | | | | | |
| 5 | .01 | .03 | .17 | .19 | .14 | | | | | | | | | | | | | | | | | | |
| 6 | .11 | .19 | .09 | .04 | .01 | .07 | | | | | | | | | | | | | | | | | |
| 7 | .13 | .11 | -.03 | .07 | .12 | -.01 | .04 | | | | | | | | | | | | | | | | |
| 8 | .07 | .15 | .01 | .04 | .08 | .06 | .07 | .05 | | | | | | | | | | | | | | | |
| 9 | .10 | .05 | .02 | .08 | .00 | .19 | .00 | .08 | .02 | | | | | | | | | | | | | | |
| 10 | -.01 | .04 | .24 | .05 | .18 | .02 | -.02 | -.05 | -.02 | .05 | | | | | | | | | | | | | |
| 11 | .13 | .16 | .04 | .12 | .02 | .07 | .01 | -.06 | .02 | -.03 | .01 | | | | | | | | | | | | |
| 12 | .03 | -.07 | -.01 | .10 | .12 | -.04 | .01 | .08 | .02 | .17 | -.10 | .02 | | | | | | | | | | | |
| 13 | .00 | .09 | .08 | .05 | .06 | .05 | -.01 | .08 | -.12 | .06 | .06 | .08 | .02 | | | | | | | | | | |
| 14 | .12 | -.04 | .11 | .00 | .09 | .06 | .14 | .00 | .09 | .08 | -.02 | -.05 | -.08 | .01 | | | | | | | | | |
| 15 | .00 | .09 | .00 | .08 | .08 | .01 | -.01 | .08 | -.01 | -.04 | -.07 | .03 | .00 | -.12 | .00 | | | | | | | | |
| 16 | .04 | .11 | -.02 | .05 | .05 | -.01 | .10 | .05 | -.09 | .05 | .02 | .08 | .11 | -.05 | -.04 | .02 | | | | | | | |
| 17 | .13 | -.02 | .11 | -.14 | .03 | .06 | .04 | -.01 | .09 | .06 | .02 | .09 | -.04 | .03 | .03 | .02 | .02 | | | | | | |
| 18 | .00 | -.03 | -.11 | -.08 | -.13 | -.13 | -.08 | -.06 | .03 | .09 | .00 | -.07 | .00 | .00 | .05 | .00 | .02 | .24 | | | | | |
| 19 | .02 | .06 | .00 | -.12 | -.10 | -.02 | -.08 | -.14 | -.08 | .07 | -.03 | -.07 | .01 | .00 | -.01 | .00 | .00 | .27 | .11 | | | | |
| 20 | -.04 | -.02 | .02 | -.02 | -.01 | -.02 | -.08 | -.11 | .00 | .05 | -.01 | -.02 | .05 | -.02 | .03 | -.03 | -.14 | .12 | .13 | .07 | | | |
| 21 | .09 | .01 | .07 | -.03 | .02 | .03 | -.03 | -.08 | .00 | -.02 | .09 | -.07 | -.01 | .08 | .18 | -.09 | -.01 | .13 | .06 | .00 | .04 | | |
| 22 | .08 | .07 | .15 | .02 | -.05 | .05 | -.01 | .04 | -.08 | .03 | .01 | .08 | .04 | -.01 | -.03 | .00 | -.03 | .03 | .04 | .19 | -.01 | .05 | |
| 23 | -.04 | .07 | -.05 | -.11 | -.07 | .05 | .01 | -.01 | -.06 | .00 | .07 | -.09 | -.01 | -.06 | -.05 | .06 | -.03 | .00 | .14 | .14 | .06 | .16 | .05 |
| 24 | .13 | .00 | .11 | .04 | -.07 | -.02 | .03 | .05 | .05 | .05 | .03 | .01 | .02 | .05 | -.01 | .06 | -.04 | .15 | .09 | .02 | .00 | .03 | .01 |
| 25 | .10 | .15 | .05 | .10 | .09 | -.02 | .04 | -.01 | .05 | -.01 | .05 | .01 | .00 | -.01 | .10 | .02 | -.06 | .07 | .05 | .03 | .09 | -.09 | .02 |
| 26 | .01 | .04 | -.02 | -.02 | -.02 | .00 | .01 | -.02 | .03 | -.05 | -.15 | -.08 | .00 | .08 | .09 | -.05 | -.05 | .10 | .02 | .07 | .02 | .08 | -.06 |
| 27 | -.03 | .03 | .16 | .05 | .12 | -.03 | .03 | -.04 | -.03 | .04 | .06 | -.02 | -.04 | -.03 | .10 | .00 | -.02 | .03 | -.03 | .08 | .10 | -.03 | .01 |
| 28 | -.11 | .02 | .01 | -.02 | -.10 | -.03 | -.02 | -.04 | -.06 | -.01 | .01 | -.03 | -.11 | .05 | .05 | -.03 | -.02 | .16 | .10 | .02 | .04 | .07 | .11 |
| 29 | -.03 | .15 | .05 | -.06 | -.07 | .06 | -.01 | .06 | .13 | -.06 | -.06 | .08 | .05 | -.01 | -.07 | .03 | .08 | -.03 | -.02 | .01 | .05 | .11 | .07 |
| 30 | -.04 | -.13 | .04 | -.08 | .09 | -.06 | -.05 | .09 | -.04 | .16 | -.02 | .03 | -.03 | .06 | .06 | .04 | .00 | .08 | .01 | .04 | .00 | .07 | .05 |
| 31 | .13 | -.03 | -.04 | -.06 | -.01 | .09 | .03 | .07 | .03 | .11 | -.07 | .09 | .05 | .06 | .16 | -.15 | .10 | .12 | .05 | .00 | .07 | .01 | -.06 |
| 32 | -.06 | .06 | -.08 | -.05 | -.02 | .05 | .06 | .03 | -.01 | -.09 | .01 | -.04 | -.07 | -.04 | -.11 | -.05 | .04 | .07 | .07 | .06 | -.03 | .10 | .04 |
| 33 | .03 | .05 | .06 | -.13 | -.08 | .06 | .06 | .06 | .05 | .04 | -.01 | .01 | -.02 | .01 | .11 | .00 | .05 | .04 | -.06 | -.01 | .04 | .07 | -.12 |
| 34 | -.01 | -.05 | .07 | .01 | -.04 | .00 | -.03 | .04 | .01 | .03 | -.07 | .00 | -.05 | .00 | .00 | .03 | .07 | -.02 | .00 | .02 | .02 | -.02 | .06 |
| 35 | -.09 | .10 | .06 | .04 | .01 | .00 | .06 | -.09 | .07 | .01 | .10 | -.04 | -.03 | .05 | .04 | .07 | -.04 | .09 | .03 | -.08 | .04 | -.02 | .04 |
| 36 | .08 | -.02 | .01 | .04 | -.10 | .05 | .03 | .08 | -.05 | -.05 | -.01 | .03 | .05 | .05 | -.04 | .12 | .06 | .05 | .02 | -.01 | .04 | .05 | .05 |
| 37 | .00 | .01 | -.03 | -.02 | .06 | .02 | .18 | .01 | -.02 | .00 | -.08 | .05 | .05 | .03 | .02 | .20 | -.08 | .05 | .10 | .03 | -.04 | .04 | .03 |
| 38 | .05 | -.03 | .02 | -.08 | .05 | -.02 | -.05 | .00 | -.06 | -.09 | .00 | -.04 | .02 | -.11 | .06 | .05 | -.03 | .01 | .00 | .01 | .03 | -.06 | -.01 |
| F1* | .44 | .42 | .33 | .34 | .38 | .26 | .20 | .22 | .14 | .23 | .11 | .15 | .13 | .10 | .03 | .13 | .14 | .13 | .16 | .10 | .06 | .10 | .08 |
| F2 | .07 | .14 | .15 | -.16 | -.11 | .03 | .03 | -.02 | -.01 | .08 | -.02 | -.04 | -.01 | .06 | .18 | .07 | -.04 | .49 | .32 | .26 | .21 | .23 | .22 |

*factor loadings

Table 8 (cont.)

| Item | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | F1 | F2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | .03 | | | | | | | | | | | | | | | | |
| 25 | .05 | .03 | | | | | | | | | | | | | | | |
| 26 | .08 | .10 | .07 | | | | | | | | | | | | | | |
| 27 | .08 | .17 | -.03 | .05 | | | | | | | | | | | | | |
| 28 | -.06 | -.07 | .02 | .03 | .02 | | | | | | | | | | | | |
| 29 | .08 | .06 | .08 | .07 | -.04 | .08 | | | | | | | | | | | |
| 30 | -.02 | .15 | -.02 | .13 | -.01 | .07 | .04 | | | | | | | | | | |
| 31 | .11 | -.04 | .03 | -.02 | .01 | -.01 | -.07 | .00 | | | | | | | | | |
| 32 | -.01 | .00 | .10 | -.01 | .08 | .09 | .00 | -.07 | .02 | | | | | | | | |
| 33 | -.10 | -.05 | 06 | .04 | .09 | .14 | .00 | .06 | .07 | .00 | | | | | | | |
| 34 | .10 | .05 | .06 | .02 | -.07 | .12 | .09 | .03 | -.06 | -.02 | .02 | | | | | | |
| 35 | -.01 | .02 | -.03 | .09 | .06 | .03 | -.05 | .01 | -.09 | -.02 | -.03 | .00 | | | | | |
| 36 | -.03 | -.02 | .07 | -.02 | .08 | -.04 | .01 | -.07 | .07 | -.08 | .11 | -.07 | 00 | | | | |
| 37 | .02 | -.04 | .08 | .02 | -.04 | -.02 | .05 | -.05 | .02 | .00 | .02 | -.13 | -.10 | .00 | | | |
| 38 | .10 | -.01 | .05 | -.01 | -.06 | .09 | .09 | -.01 | .04 | .04 | -.04 | -.03 | -.05 | .03 | .00 | | |
| F1• | .13 | .18 | -.05 | .10 | -.12 | .08 | .03 | .15 | -.10 | .09 | .00 | .09 | .09 | .11 | -.07 | 100 | |
| F2 | .19 | .16 | .26 | .21 | .15 | .28 | .19 | 03 | .16 | .06 | .13 | -.04 | .02 | .02 | .06 | 11 | 100 |

•factor loadings

their expected values. Such a 5% deviation would be expected by chance, hence no items were excluded from the factors.

It was not clear, conceptually, why the two factors existed. It was surmised that the 40-item scale might be functioning like a Guttmann scale, with items in one factor easier to answer than those in the other. The means and standard deviations of the items, however, did not differ greatly. Similarly, neither factor contained more dominant-submissive or positive-negative correct responses than the other. Nor did either factor contain more randomized-spliced or content-filtered items than the other. One final possibility involved the pairings of incorrect responses with correct responses. The first factor contained 11 of 17 items in which respondents had to choose between a positive and a negative response, while in the second factor 13 of 20 items required such a choice. Further, the second factor contained 15 of 20 items in which the respondents had to choose between a dominant and a submissive response, while in the first factor 7 of 17 items required such a choice. This may suggest that the first factor was more of a test of respondents' abilities to distinguish between possible responses on the positive-negative continuum, and the second factor was a test of respondents' abilities to discriminate between possible responses on the dominant-submissive continuum. These differences, though, were not extremely striking, and the low factor loadings suggest the factors were not very distinct.

A final reliability estimate was performed on the 40-item PONS audio scale, with items reflected as indicated in the exploratory factor analysis. The reliability of this reflected scale (.40) was much higher than that of the unreflected 40-item scale (Table 1) but was still not sufficient for valid conclusions based on tests of the hypotheses.

Due to this reliability problem, tests of hypotheses one, two and three were performed using the unreflected decoding scale, the reflected decoding scale and the two factors from the decoding scale to see what differences would emerge across the four alternative measurement versions. Since results of these analyses were inconclusive, the tests of hypotheses four and five were simplified to include only the unreflected and the reflected 40-item decoding scales. The unreflected scale was used to examine whether the results from it were similar to those reported by Hall (1980) who used the same unreflected scale. The reflected scale was used to see if the results differed significantly from those of the unreflected scale. Tests of the first research question examining decoding ability's correlation with relational message perceptions were not performed, since the unreliability of the decoding scale and the inconclusive results of the hypothesis tests suggested that the results of this test would not be interpretable. Tests of the second and third research questions were performed as intended, since they did not involve the decoding ability variable.

Hypothesis One

Hypotheses one, two and three were tested using Pearson product moment correlations.[12]

Hypothesis one predicted that as decoding ability increases, need for affiliation increases and sensitivity to rejection decreases. Table 9 shows that this hypothesis was not supported; none of the correlations were significantly different from zero.

Hypothesis Two

Hypothesis two predicted that as decoding ability increases, communication reticence decreases. This hypothesis also was not supported (Table 9). One correlation was significant, between decoding ability factor B and the reward dimension.

Hypothesis Three

Hypothesis three, which predicted as decoding ability increases, source credibility perceptions would increase, also was not supported (Table 9). None of the correlations were significantly different from zero.

Hypotheses Four

Hypotheses four and five were tested by (1) hierarchical regression analyses, (2) analysis of variance tests, and (3) t-tests for comparison of cell means. Order of entry in the regression models was (1) interviewer encoding ability, (2) persuasive condition and respondent decoding ability, and (3) interaction between persuasive

Table 9
Decoding Ability Correlations*

| | Need for Affiliation | Sensitivity to Rejection | Approach-Avoidance | Reward | Sociability - Character | Extraversion | Competence | Composure |
|---|---|---|---|---|---|---|---|---|
| Decoding Ability (Unreflected Scale) | .00 | .05 | .01 | .01 | .01 | -.02 | -.03 | -.10 |
| Decoding Ability (Reflected Scale) | .02 | .01 | .06 | .05 | .08 | .00 | -.02 | -.02 |
| Decoding Ability (A) | .00 | -.01 | .04 | .02 | .07 | -.07 | -.04 | -.03 |
| Decoding Ability (B) | .02 | -.03 | .05 | .10** | .05 | .03 | .01 | .03 |

*correlations reported are not corrected for attenuation due to the large unreliability in the decoding variables
**significant at p less than .05, n=251

condition and decoding ability. Confirmation of the hypotheses was dependent upon a significant interaction effect in both the regression analysis and the analysis of variance and identification of the hypothesized order of cell means by the t-tests.

The use of both regression and analysis of variance was necessitated by the size and type of effects expected. Effects for some variables and interactions might have been small. Regression was a much more sensitive (i.e., powerful) test than analysis of variance, because, regression did not spread the interaction effect across the cells as would analysis of variance (Hunter, 1982). Thus, regression was more likely to detect interactions with small effect sizes than was analysis of variance. Further, regression allowed the use of a continuous decoding ability variable rather than the median-split categorical variable required by analysis of variance. Such a continuous variable should have provided a better test of the decoding ability effect. Analysis of variance was used to probe the interaction effects identified by the regression analyses. Further, analysis of variance was used originally by Hall and use of it in the current study replicated her method.

Hypothesis four predicted an interaction between decoding ability and persuasive condition on the respondents' image of the interviewers' voices. This interaction was not found in the regression analysis (Table 10). Only interviewer encoding ability and voice condition were significant predictors in both the unreflected and the reflected

Table 10
Final Regression Model Predicting Voice Image Ratings

| UNREFLECTED DECODING ABILITY SCORES: Predictor | Standardized Beta |
|---|---|
| Interviewer Encoding Ability | -.14 |
| Voice Condition (Hostile condition received lower ratings) | -.33 |
| Overall F due to regression = 11.99, df= 2/165, p<.05 | |
| R-square = .13, R-square (adjusted for shrinkage) = .12 | |

| REFLECTED DECODING SCORES Predictor | Standardized Beta |
|---|---|
| Interviewer Encoding Ability | -.14 |
| Voice Condition (Hostile condition received lower ratings) | -.33 |
| Overall F due to regression = 11.99, df= 2/165, p<.05 | |
| R-square = .13, R-square (adjusted for shrinkage) = .12 | |

Table 11
Analysis of Variance and Means on Voice Image Ratings

UNREFLECTED DECODING ABILITY SCORES:

| | | Voice Condition Means* | | | |
|---|---|---|---|---|---|
| | | Hostile | Neutral | Pleasant | Total |
| Decoding Ability | Low (Poor) | 22.35 (23) | 28.19 (27) | 26.61 (23) | 25.85 (73) |
| | High (Good) | 22.38 (34) | 27.44 (34) | 26.91 (32) | 25.55 (100) |
| | Total | 22.37a (57) | 27.77b (61) | 26.78b (55) | 25.68 (173) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Encoding Ability** | 238.70 | 1 | 238.70 | 5.92 | <.05 |
| Main Effects | 976.62 | 3 | 325.54 | 8.08 | <.05 |
| Decoding Ability | 16.32 | 1 | 16.32 | .40 | >.05 |
| Voice Condition (Omega-squared = .11) | 952.04 | 2 | 476.02 | 11.81 | <.05 |
| Interaction Decoding X Condition | 5.17 | 2 | 2.59 | .06 | >.05 |
| Explained | 1120.49 | 6 | 203.42 | 5.05 | <.05 |
| Residual | 6689.38 | 166 | 40.30 | | |
| Total | 7909.87 | 172 | 45.99 | | |

REFLECTED DECODING SCORES:

| | | Voice Condition Means* | | | |
|---|---|---|---|---|---|
| | | Hostile | Neutral | Pleasant | Total |
| Decoding Ability | Low (Poor) | 23.14 (28) | 28.00 (26) | 26.23 (26) | 25.72 (80) |
| | High (Good) | 21.62 (29) | 27.60 (35) | 27.28 (29) | 25.63 (93) |
| | Total | 22.37a (57) | 27.77b (61) | 26.78b (55) | 25.68 (173) |

| Source of variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Encoding Ability** | 238.70 | 1 | 238.70 | 5.94 | <.05 |
| Main Effects | 963.30 | 3 | 321.10 | 7.99 | <.05 |
| Decoding Ability | 3.02 | 1 | 3.02 | .07 | >.05 |
| Voice Condition (Omega-squared = .11) | 963.23 | 2 | 481.61 | 11.98 | <.05 |
| Interaction Decoding X Condition | 36.72 | 2 | 18.36 | .46 | >.05 |
| Explained | 1238.73 | 6 | 206.46 | 5.14 | <.05 |
| Residual | 6671.15 | 166 | 40.19 | | |
| Total | 7909.87 | 172 | 45.99 | | |

LINEAR TREND ANALYSIS ON VOICE CONDITION MAIN EFFECT:

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Between Groups | 958.44 | 2 | 479.22 | 11.72 | <.05 |
| Linear | 555.26 | 1 | 555.26 | 13.58 | <.05 |
| Deviation | 403.18 | 1 | 403.18 | 9.86 | <.05 |
| Within Groups | 6951.43 | 170 | 40.89 | | |

*Means with different letters are significantly different based on t-test; cell sizes are in parentheses.
**Encoding ability covariate regression coefficient = -3.91

decoding models. These results indicated that as encoding ability increased, perceptions of the interviewer's voice became less favorable. Further, the condition effect was such that respondents in the hostile condition rated the interviewer's voice as less appropriate and positive.

Table 11 presents the analysis of variance[13] results for both the unreflected and the reflected decoding ability scales. These results were similar those of the regression analysis. The encoding ability variable (entered as a continuous variable using a covariate routine, since encoding ability was already above the median score for the group of potential interviewers) and persuasive condition main effect were significant. The nonlinear condition effect on the repondents' ratings of the interviewers' voices was confirmed by the significant nonlinear variance component identified in the linear trend analysis and significant t-test of the difference between the hostile condition mean and the means in the neutral and pleasant conditions (Table 11).

Hypothesis Five

Hypothesis five predicted an interaction between decoding ability and persuasive condition on hours donated to communication research. Results of regression analysis using the unreflected decoding ability scale showed significant effects for decoding ability, persuasive condition and decoding ability by persuasive condition interaction (Table 12). Examination of the cell means (Table 13) revealed the interaction between decoding ability and persuasive condition was

Table 12
Final Regression Model Predicting Hours Donated

| UNREFLECTED DECODING ABILITY SCORES: | | REFLECTED DECODING SCORES | |
|---|---|---|---|
| Predictor | Standardized Beta | Predictor | Standardized Beta |
| Decoding Ability | .40 | No significant predictors in the model | |
| Voice Condition (Dummy vector 1*) | 1.84 | | |
| Voice Condition (Dummy vector 2) | 1.85 | | |
| Decoding X Condition (Dummy vector 1) | -1.93 | | |
| Decoding X Condition (Dummy vector 2) | -1.99 | | |
| Overall F due to regression = 2.74, df = 5/200, p<.05<br>R-square = .06, R-square (adjusted for shrinkage) = .04 | | | |

*Dummy vector 1 is a comparison of the hostile condition to the neutral and pleasant conditions;
dummy vector 2 is a comparison of the pleasant condition to the hostile and neutral conditions.

Table 12
Final Regression Model Predicting Hours Donated

| UNREFLECTED DECODING ABILITY SCORES: | | REFLECTED DECODING SCORES: | |
|---|---|---|---|
| Predictor | Standardized Beta | Predictor | Standardized Beta |
| Decoding Ability | .40 | No significant predictors in the model | |
| Voice Condition (Dummy vector 1*) | 1.84 | | |
| Voice Condition (Dummy vector 2) | 1.85 | | |
| Decoding X Condition (Dummy vector 1) | -1.93 | | |
| Decoding X Condition (Dummy vector 2) | -1.99 | | |

Overall F due to regression = 2.74, df = 5/200, p<.05
R-square = .06, R-square (adjusted for shrinkage) = .04

*Dummy vector 1 is a comparison of the hostile condition to the neutral and pleasant conditions; dummy vector 2 is a comparison of the pleasant condition to the hostile and neutral conditions.

Table 13
Analysis of Variance and Means on Hours Donated

UNREFLECTED DECODING ABILITY SCORES:

| | | Voice Condition Means* | | | |
|---|---|---|---|---|---|
| | | Hostile | Neutral | Pleasant | Total |
| Decoding Ability | Low (Poor) | 6.97a (29) | 6.16a (31) | 5.55a (29) | 6.22 (89) |
| | High (Good) | 6.15a (41) | 5.57a (37) | 8.33b (39) | 6.69 (117) |
| | Total | 6.49a (70) | 5.84a (68) | 7.15ab (68) | 6.49 (206) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Encoding Ability | 7.88 | 1 | 7.88 | .37 | >.05 |
| Main Effects | 71.53 | 3 | 23.84 | 1.13 | >.05 |
| Decoding Ability | 13.42 | 1 | 13.42 | .63 | >.05 |
| Voice Condition | 56.70 | 2 | 28.35 | 1.34 | >.05 |
| Interaction Decoding X Condition (Omega-squared = .02) | 136.54 | 2 | 68.27 | 3.22 | <.05 |
| Explained | 215.95 | 6 | 35.99 | 1.70 | >.05 |
| Residual | 4213.53 | 199 | 21.17 | | |
| Total | 4429.48 | 205 | 21.61 | | |

REFLECTED DECODING SCORES:

| | | Voice Condition Means** | | | |
|---|---|---|---|---|---|
| | | Hostile | Neutral | Pleasant | Total |
| Decoding Ability | Low (Poor) | 5.97 (36) | 5.65 (31) | 6.58 (33) | 6.07 (100) |
| | High (Good) | 9.66 (34) | 6.00 (37) | 7.69 (35) | 7.75 (106) |
| | Total | 7.79 (71) | 5.84 (68) | 7.15 (68) | 6.94 (207) |

| Source of variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Encoding Ability* | 7.87 | 1 | 7.87 | .36 | >.05 |
| Main Effects | 93.91 | 3 | 31.30 | 1.44 | >.05 |
| Decoding Ability | 35.80 | 1 | 35.80 | 1.65 | >.05 |
| Voice Condition** | 60.34 | 2 | 30.17 | 1.39 | >.05 |
| Interaction Decoding X Condition | 5.02 | 2 | 2.51 | .12 | >.05 |
| Explained | 106.81 | 6 | 17.80 | .82 | >.05 |
| Residual | 4322.67 | 199 | 21.72 | | |
| Total | 4429.48 | 205 | 21.61 | | |

*Means with different letters are significantly different based on t-tests; cell sizes are in parentheses.
**Cell sizes are in parentheses.

disordinal. The means in the neutral and pleasant conditions conformed to the predicted order. That is, good decoders donated significantly less hours in the neutral condition and more in the pleasant. Means for the poor decoders were in the hypothesized direction (more in the neutral condition and less in the pleasant) but were not significantly different. On the other hand, in the hostile condition, good decoders did not give significantly more hours (though the mean is in the hypothesized direction), and the poor decoders tended to donate more hours (differences not significant) contrary to predictions. This interaction effect was the only significant effect in the analysis of variance test (Table 13). While these results were consistent with Hall's findings (if the neutral condition in the present study was like Hall's low persuasion condition), hypothesis five was not confirmed. The cell mean for poor decoders in the hostile condition was not in the hypothesized order, and means were not all significantly different from one another.

The regression and analysis of variance results employing the reflected decoding ability scale were much different. No significant predictors of hours donated to communication research were identified and the analysis of variance test showed no significant effects.

Research Question One

Research question one was not examined due to unreliability of the vocal decoding ability test.

Research Question Two

Research questions two and three were examined using a series of Pearson product moment correlations with two-tailed tests of significance.

Research question two examined the relationship between relational message perceptions and personality traits, source credibility perceptions, persuasive condition and compliance (Tables 14 and 15).

Respondents who had a higher need for affiliation perceived more intimacy. Those who had a higher sensitivity to rejection also perceived more intimacy as well as more dominance. Respondents who saw communication as less rewarding identified more emotional arousal, less intimacy, more nonimmediacy and more dominance.

Source credibility was highly related to relational message perceptions. Interviewers seen as more sociable and higher in character were perceived to express less emotional arousal, more intimacy, less nonimmediacy and less dominance. Interviewers perceived as more extraverted were seen to communicate less intimacy, more nonimmediacy and more dominance. Interviewers thought to be more competent communicated less emotional arousal, less nonimmediacy and less dominance. Finally, those perceived to be more composed communicated less emotional arousal, more intimacy, less nonimmediacy and less dominance.

Table 14
Relational Messages Correlations[1]

| | Emotional Arousal | Intimacy | Nonimmediacy | Dominance |
|---|---|---|---|---|
| Need for Affiliation | .06 | .18* | .00 | .12 |
| Sensitivity to Rejection | .04 | .17* | -.06 | .17* |
| Unwillingness-to-Communicate | | | | |
| Approach-Avoidance | .04 | .13 | -.02 | .01 |
| Reward | .17* | -.17 | .22* | .26* |
| Credibility | | | | |
| Sociability-Character | -.45** | .62** | -.78** | -.35** |
| Extraversion | .10 | -.21** | .15** | .39** |
| Competence | -.38** | .04 | -.20** | -.29** |
| Composure | -.44** | .16** | -.25** | -.30** |
| Hours Donated | .13 | -.11 | .09 | .08 |

[1] Correlations are corrected for attenuation.
For each scale, the higher the score on the scale, the higher the labelled trait or perception.
*significant at $p<.05$, n=168
**significant at $p<.05$, n=175

Table 15
Analysis of Variance of Voice Conditions on Relational Messages[1]

Emotional Arousal:

| Voice Condition Means* | | | |
|---|---|---|---|
| Hostile | Neutral | Pleasant | Total |
| 19.74 (58) | 23.42 (62) | 22.28 (57) | 21.85 (177) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Condition | 421.16 | 2 | 210.58 | 10.29 | <.05 |
| Residual | 3561.73 | 174 | 20.47 | | |
| Total | 3982.88 | 176 | 22.63 | | |

Intimacy:

| Voice Condition Means* | | | |
|---|---|---|---|
| Hostile | Neutral | Pleasant | Total |
| 23.11 (57) | 19.44 (62) | 19.21 (57) | 20.55 (176) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Condition | 551.45 | 2 | 275.73 | 14.00 | <.05 |
| Residual | 3406.08 | 173 | 19.69 | | |
| Total | 3957.54 | 176 | 22.61 | | |

[1]For each relational message scale, the higher the score, the higher the labelled perception.
*Cell sizes are in parentheses.

Table 15 (cont.)

Nonimmediacy:

| Voice Condition Means* | | | |
|---|---|---|---|
| Hostile | Neutral | Pleasant | Total |
| 13.47 (57) | 17.59 (63) | 18.16 (56) | 16.44 (176) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Condition | 750.28 | 2 | 375.14 | 17.38 | <.05 |
| Residual | 3733.03 | 173 | 21.58 | | |
| Total | 4483.31 | 176 | 25.62 | | |

Dominance:

| Voice Condition Means* | | | |
|---|---|---|---|
| Hostile | Neutral | Pleasant | Total |
| 18.84 (56) | 22.19 (63) | 20.77 (57) | 20.66 (176) |

| Source of Variation | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Condition | 333.92 | 2 | 166.96 | 6.14 | <.05 |
| Residual | 4707.30 | 173 | 27.21 | | |
| Total | 5041.22 | 176 | 28.81 | | |

*Cell sizes are in parentheses.

The pleasant and neutral voice conditions produced similar relational mesage perceptions: less emotional arousal, more intimacy, less nonimmediacy and less dominance. The hostile voice condition produced perceptions of more emotional arousal, less intimacy, more nonimmediacy and more dominance.

Hours donated to communication research were not significantly related to perceived relational messages.

Research Question Three

Research question three examined the relationship between vocal characteristics and source credibility perceptions, relational messages and compliance (Table 16).

Higher vocal pleasantness was associated with higher sociability and character and higher composure. Higher vocal assertiveness was associated with lower sociability and character, higher extraversion, and lower composure.

Voices with more pleasantness were related to messages of less emotional arousal, more intimacy, less nonimmediacy and less dominance. Voices with more assertiveness were related to messages of more emotional arousal, less intimacy, more nonimmediacy and more dominance.

Hours donated to communication research were not significantly correlated with vocal pleasantness or vocal assertiveness.

Table 16
Vocal Characteristics Correlations[1]

| | Vocal Characteristics Factors | |
|---|---|---|
| | Pleasantness | Assertiveness |
| Credibility | | |
| Sociability-Character | .35* | -.29* |
| Extraversion | -.11 | .25* |
| Competence | .01 | .09 |
| Composure | .22* | -.22* |
| Relational Messages | | |
| Emotional Arousal | -.27* | .28* |
| Intimacy | .25* | -.27* |
| Nonimmediacy | -.32* | .30* |
| Dominance | -.17* | .23* |
| Hours Donated | -.06 | -.10 |

[1] Correlations are corrected for attenuation
For each scale, the higher the score, the higher the perception or characteristic.
*significant at $p<.05$, $n=150$

## CHAPTER 4: DISCUSSION

The present experiment was designed largely to replicate Hall's (1980) study of the persuasive effects of voice tone and decoding ability and to test a violations of expectations interpretation of those effects. Although the specific hypotheses were not confirmed, Hall's pattern of results was replicated, and a number of other important findings emerged. Among the most important implications of the study are the following: (1) vocal variations do affect receiver perceptions and evaluations of interviewers with pleasant voices producing more positive evaluations and hostile voices more negative ones, (2) vocal behavior and receiver decoding ability both affect perceptions of relational messages, (3) relational message perceptions are positively related to all but the extraversion dimension of credibility, which carries negative relational connotations, and (4) in this investigation at least, encoding ability, relational message perceptions and vocal behaviors do not directly affect compliance. Additionally, the PONS audio decoding ability test was found to be unreliable, a result that significantly undermined the hypothesis tests in this investigation and raises questions about its use as a measurement instrument.

The interaction between voice condition and compliance in the neutral and pleasant conditions replicated that of Hall and conformed to the violations of expectations model offered in the rationale. This replication, even with the extremely low reliability of the vocal

decoding test, suggests that the interaction is not an anomalous effect and may be, in fact, quite large. However, reactions to the hostile voice were not consistent with the theory, indicating that the nonverbal violations of expectations model may have been inappropriately applied to this condition. Unlike proxemic shifts for which the nonverbal violations model was originally developed, some vocal behaviors (i.e., hostile vocal cues) were consistently labelled as negative, leading to negative reactions by all communicators. This labelling is an important part of the model. It allows for positive and negative violations of expectations apart from the reward valence of the source. That is, a violation consistently labelled negative regardless of source reward valence will result in less compliance, while a violation consistently labelled positive will produce more compliance. Apparently, such a negative violation occurred in the hostile condition. Respondents saw the hostile voice as negative and inappropriate and responded by not increasing their compliance beyond that in the neutral condition. The pleasant voice, conversely, appears to have been a positive violation, producing more compliance especially among good decoders.

One difficulty with applying a violations model interpretation was the untested entering assumption that a neutral voice tone is expected by most communicators. In retrospect, it could be argued that the pleasant voice was the expected pattern and the neutral voice a violation. The voice image ratings suggest that respondents perceived

the pleasant and neutral voices as equally appropriate and positive and the hostile voice as inappropriate and negative. Hence, both the positive and neutral voices may have been considered normative by respondents, leaving only the hostile voice as a violation in this design. These ratings, however, may be misleading. First, the violations model does not require that victims of a violation be conscious of the violation. Second, ratings of the voices by independent judges showed significant differences in ratings of all three voices. The hostile voice was seen as more assertive and unpleasant than the neutral and pleasant voices, while the pleasant voice was rated as more pleasant than the neutral and hostile voices but no more unassertive than the neutral voice. Finally, a significant change in compliance occurred among good decoders in response to the pleasant voice. These respondents gave more hours in response to this voice. Thus, it is unclear which voice tone was normative, whether the experimental manipulations were adequate to produce vocal deviations which were perceived as violating voice norms, and whether the effect on compliance was due to a nonverbal violation of expectations at all.

A significant extension of the nonverbal violations of expectations model was the idea that receiver predispositions toward communicators and communication situations would produce differences in source reward valence in much the same way as objective source characteristics. While the hypotheses linking these predispositions to vocal decoding ability and credibility perceptions were not supported,

relational message perceptions were affected by these predispositions, suggesting that predispositions may establish source reward differentials on a relational level. Specifically, respondents with a higher need for affiliation, lower sensitivity to rejection and lower communication reticence made more positive relational message perceptions, including increased intimacy and immediacy and decreased emotional arousal and dominance perceptions, while their counterparts made more negative perceptions on these same dimensions. These relational perceptions were directly related to credibility perceptions, suggesting that the link between receiver predispositions and reward valence of the source, in the form of credibility assessments, is mediated by relational message perceptions. This mediating role of relational message perceptions would reduce the size of the correlation between predispositions and credibility perceptions in this experment[14]. Such receiver predispositions provide a useful mechanism for predicting responses to violations of expectations in situations where source characteristics are relatively consistent. Further, it seems that communication reticence is a more useful trait for predicting reward valence variations, giving added importance to differences in message perceptions by reticent and nonreticent individuals identified in this experiment and past investigations by other researchers.

Although these concerns suggest that a violations interpretation was not put to a fair test, the question must still be asked as to whether the pattern of results could be better explained from a different theoretical perspective. It may be that the apparent differences caused by decoding ability are an artifact of the unreliable decoding ability scale. If so, this would leave only the main effect for voice condition. The pattern of a pleasant voice producing the most compliance, although nonsignificant, would then be suggestive of a simple positive reinforcement paradigm. However, it may be premature to make such a conclusion given the replication of the decoding by condition interaction in the neutral and pleasant conditions even with the unreliable decoding test.

Future research on the application of the violations model outside the proxemic and language arenas needs to examine carefully the type of behavior considered normative, the ability of respondents to label deviations from normality as positive as well as negative, the size of deviations necessary to produce violations of expectations, and the personality, cognitive and objective mechanisms which establish the reward valence of communicators.

A troubling methodological finding is the lack of reliability in the PONS vocal decoding ability scale. The test has been used extensively in research on nonverbal sensitivity, and many theoretical conclusions in this area are based on its findings. This casts a cloud of doubt over the validity of these theories, including the

accommodation hypothesis central to the rationale of this study. This is not to say the entire PONS test, both audio and video, is suspect; however, it seems apparent that the audio version is not a reliable testing instrument.

Another problem specific to the present study is that the unreliability of the vocal decoding scale raises questions about the validity of tests of the hypotheses and research question examining the effect of vocal decoding ability. It is apparent that the reflected decoding test produced results different from the unreflected, traditional decoding test. Which test is more valid is uncertain. The reflected version had higher reliability, but the unreflected version replicates the Hall's findings. The presence of two factors in the decoding scale further confuses the issue. What their conceptual distinction is is not clear. Some evidence points to the nature of the correct and incorrect responses, i.e., whether the correct and incorrect choices are positive or negative, dominant or submissive. This distinction between the factors, however, was not large and the factors were weak. It cannot be concluded, however, that the hypotheses are disconfirmed, though they were based partially on findings employing this unreliable test. Rather, the unreliability and possible multidimensional nature of the decoding test makes any conclusions based on the results of analyses employing this scale tenuous at best.

An important question raised by these findings is, what does the PONS audio decoding scale really measure? The test actually may be assessing respondents' reactions to ambiguous vocal stimuli. The vocal segments presented to respondents are very short and are filtered to remove the verbal content. Such filtering makes some of the segments sound very strange and at times almost comical. It is not difficult to surmise that the vocal segments create a large amount of uncertainty in the respondents. Faced with these ambiguous vocal stimuli, the only information providing a frame of reference for the respondents is the possible responses to each item. Hence, this pairing may determine the respondents' reactions. Respondents may behave differently when choosing between positive and negative responses than when choosing between dominant and submissive responses. Some respondents may be predisposed toward positive responses, while others may be predisposed toward negative ones. Similar predispositions may occur with dominant versus submissive choices. Further, a person may make systematic choices when faced with a positive and a negative choice but select randomly when choosing between a dominant and a submissive choice. The low inter-item correlations suggest that many respondents may in fact be guessing randomly, with no knowledge of the correct response.

Another question which must be answered is, how is a reliable test of vocal decoding ability constructed? The method of using the filtered voices may be valid; however, the stimuli used in the PONS test seem inadequate to produce high reliability. Duration of the

segments may be the problem: They are extremely brief (1 sec.). It may be necessary to increase the length of these vocalizations to produce reliable responses.

Besides lengthening the vocal segments, inclusion of verbal content may be needed to produce a reliable test. While this is primarily a validity issue, reducing the ambiguity and artificiality of the vocal stimuli by including verbal content may result in increased reliability. Vocalic cues, by their very nature, are intimately and perhaps necessarily tied to verbal utterances. Communicators may rely heavily upon the verbal utterance for the meaning of vocalic cues, more so than when interpreting kinesic cues (employed in the visual portion of the PONS, which is more reliable (Rosenthal et al., 1979)). Thus, when the verbal utterance is removed, the remaining vocal sound may contain too little information for accurate decoding, leading to random guessing and overreliance on response choices for a frame of reference. This lack of information may be even more acute when the sounds are filtered, since filtering creates vocalic sounds which seem very artificial. This suggests that vocalics are meaningful only when encoded along with verbal content. There are of course obvious exceptions, such as vocalic emblems (e.g., "uh-huh" meaning "yes" and "uh-uh" meaning "no"); however, the vast majority of vocalic cues may need to be accompanied by the verbal content to provide enough meaning so as to allow reliable responses. A number of problems with such a methodology have been identified (cf., Harper, Wiens & Matarazzo,

1978); however, these may be unavoidable in the construction of a valid, reliable measure of vocal decoding ability.

Hall employed such a verbal-based decoding test, along with the PONS audio test in her experiment. This verbal-based test consisted of a portion of the items from the encoding test she administered to interviewers in her study. Interestingly, the interaction effect she found between decoding ability and persuasive condition involved scores from a combination of the PONS audio test and this verbal-based decoding test. Unfortunately, she did not report reliability estimates for this verbal-based test.

Future research efforts must address two issues. First, the PONS audio test must be carefully examined to understand what it is measuring. Second, a more reliable and perhaps valid instrument to measure vocalic decoding ability must be developed. Until these two problems are addressed, the present hypotheses will remain untested, and findings from studies employing the PONS vocal decoding test will remain suspect.

Two effects can be interpreted from the hypothesis tests. First, encoding ability and voice condition did not affect compliance. As in Hall's experiment, better encoders were not better able to gain compliance using vocalic adjustments. This questions the implicit assumption that source behaviors are the most important factors in the persuasion process. It must be noted, though, that the range of encoding scores was restricted by selecting only encoders who scored

above the median of the group of potential interviewers. Further, encoding ability may not be the only source characteristic important to the persuasion process. Encoding ability, however, was related to respondents' ratings of the interviewer's voice. Apparently, encoding ability did affect the interviewers' abilities to encode the desired voices. This appears especially true for the hostile voices. Better encoders produced voices which obtained less favorable ratings. Encoding ability as measured here may have been related more to the ability to encode assertiveness cues than the ability to encode pleasantness cues. This may indicate a potential bias in the encoding test. Second, voice conditions affected perceptions of source credibility and relational messages; therefore, it may be inaccurate to conclude that encoding ability and voice condition have no effect on persuasion. The presence of intervening variables such as crediblity and relational interpretations may reduce the size of the direct effect of encoding ability and voice condition on persuasion (see Note 14).

Another problem may stem from the compliance measure. Asking for estimates of hours may have been too gross a measure of compliance. Typically, students are asked to donate time in blocks of less than an hour. Further, it would be almost impossible for a single student to have the opportunity to donate more than ten hours in a given term, and five to ten hours are unusual. Hence, the measured range was probably too broad, causing scale units to be too large. A scale employing minutes or portions of hours as units may have been more sensitive to

small changes in compliance, allowing the detection of very small variations due to encoding ability and voice condition, if they existed.

From the results of research question two it appears that personality traits influenced relational message interpretations, suggesting that such interpretations are not just a product of communicator behavior but result in part from the cognitive style of the receivers. Both those with higher needs for affiliation and those with higher sensitivity to rejection perceive more intimacy messages. For the former, this may have been a desire to initiate good interpersonal relations or an expectation of favorable relational messages. For the latter, this may have been a defense function, where perceptions of intimacy reduced the sense of rejection by the source in the form of dominance perceptions, which persons highly sensitive to rejection seemed to be predisposed toward. Results from the unwillingness-to-communicate scale support those of previous studies which found that reticent individuals are less affectionate (Burgoon & Koper, 1984), perceive less immediacy (Jensen & Andersen, 1979) and react negatively to others (Burgoon, 1976). In the present study, highly reticent individuals on the reward dimension perceived more emotional arousal, less intimacy, more nonimmediacy and more dominance by the source. This seems to support the idea that reticent individuals hold negative expectations of communication situations which influence their perceptions during communication encounters

(Burgoon & Koper, 1984). Together, these findings (except those relating sensitivity to rejection with intimacy perceptions) indirectly support the notion that some individuals form more favorable impressions of communicators, while others form less favorable impressions of communicators. This would create the differences in source valence needed to cause differential reactions by communicators encountering violations of vocalic expectations.

It is not surprising that the relational message perceptions were related to source credibility. It seems intuitive that source credibility judgements are at least partially based on the relational messages encoded by the source. Credibility may be a more generalized type of relational message, one which encompases messages of arousal, intimacy, nonimmediacy and dominance. In this study, sociability/character perceptions were higher for individuals who were perceived to send messages of less emotional arousal, more intimacy, less nonimmediacy and less dominance. These perceptions are consistent with being a relaxed, warm, affiliative, unassertive individual and may be consistent with most receivers' stereotype of a sociable person or one of high character. It is interesting that perceptions of extraversion were associated with less intimacy, more nonimmedacy and more dominance perceptions. These findings may seem counterintuitive; however, findings from the vocal characteristics ratings showed that higher extraversion ratings were associated with the more assertive (hostile) voices. Perhaps this assertive, dominating voice was

perceived as authoritative, producing perceptions of being bold, verbal and talkative. Competence ratings were most related to less emotional arousal, less nonimmediacy and less dominance. These are very similar to perceptions leading to judgements of high sociability and character. Similarly, interviewers judged to be more composed were perceived to send messages of less emotional arousal, more intimacy, less nonimmediacy and less dominance. Taken together, the results suggest that crediblity ratings may be composites of the more specific relational dimensions of emotional arousal, intimacy, nonimmediacy and dominance.

It seems the vocal manipulations produced three distinct voices, differing in pleasantness and assertiveness. These were virtually identical to those found by Hall (1980), indicating that the current study adequately replicated her methodology, though as noted previously, they may not have deviated from normality enough to produce the expected results. The hostile voice was the most assertive and least pleasant of the three and the pleasant voice was the most pleasant (though it was no less assertive than the neutral voice). The three voices also produced clear differences in respondent perceptions. Voices in the pleasant condition were given higher ratings on sociability/character, competence and composure, while those in the hostile condition were rated higher on extraversion. (Though, extremes on this dimension may not produce high credibility ratings.) However, pleasant voices probably produced more credibility overall, while

hostile voices produced perceptions of authority.

It does not appear that relational message perceptions were directly related to the number of hours donated to communication research. Relational messages may affect compliance by affecting some other variable like source credibility; hence, the extent to which relational messages cause favorable or unfavorable perceptions of the source may affect persuasive outcomes.

The lack of any significant effect by the vocalic cues on compliance seems at odds with results of experimenter expectancy research (Rosenthal, 1976); however, in interview situations, interviewer behavior may have a very small effect on responses to questions. Rosenthal (1976) reports only a small average effect (d=.27) for experimenter expectancies in 22 laboratory interview studies. This is one of the lowest effect sizes he reports for any type of social research. In telephone public opinion surveys this effect may be even smaller due to the nature of telephone interactions and the fact that they occur in field settings. The use of the telephone reduces the number of nonverbal cues received by a respondent. In particular, visual nonverbal cues are absent. Thus, the possibility of communicating interviewer expectancies over the telephone is lower than in face-to-face laboratory interviews. A norm of veracity may also reduce the effect of an interviewer's vocal variations. A respondent may feel socially obligated to respond truthfully to public opinion surveys, regardless of the interviewer's

behavior. It is possible that the respondents in the present study overlooked the interviewer's vocal behavior when formulating their responses; however, these vocal behaviors did not go unnoticed. Respondents did make judgments about the interviewer's credibility and relational messages which were affected by the vocalic cues. It seems, though, that these source related judgments were made independent of responses to the compliance question. Along with this norm of veracity, respondents may not expect interviewers to attempt to bias their responses. Respondents may disassociate interviewers from users of the responses, especially when interviewers indicate they are calling for a survey organization. This expectation may cause respondents to attribute obvious unexpected vocal variations to interviewer personality rather than interviewer intentions.

The present study, though, only investigated effects on the compliance question. Future analyses should examine effects on other types of questions contained in the experimental survey. It may be that attitudinal items are more susceptible to influence by those voice changes that affect attitudes toward the source. Further, responses to questions requesting reports of past behavior should be examined, and additional analysis of the relationships between the measured variables and responses to other types of questions also should be performed.

## NOTES

1. The neutral sentence encoded in the encoding ability pretest was, "I want to let you know what I'm thinking; I hope you understand."
2. Throughout this paper, the label "good decoder" indicates a person who scores above the median score on the PONS test of vocalic decoding ability, and the label "poor decoder" indicates a person who scores below the median score on this test. Rosenthal et al. (1979, Chapter 3) report normative data for this test.
3. Hypotheses one, two and three are actually subsidiary hypotheses designed to explain the presence of the interactions predicted in hypotheses four and five. They test assumptions that are central to the theoretical rationale.
4. All principal components and principal axes factor analyses were performed with varimax rotation. Principal components analysis was employed for those scales which had been developed by past researchers using this factor analysis procedure. Principal axes analysis was employed for scales created by the author for use in this study. The inclusion of communalities in the latter procedure was considered better for the development of previously undeveloped scales. In both types of factor analyses, inclusion of an item on a factor was determined by its primary loading being in excess of .50 on that factor and less than or equal to .30 on any other factor. Where scales were developed from results of factor

analyses, they were created using factor score coefficients. For scales constructed based on recommendations of other researchers, factors were created using unit weighted sums.

5. The unwillingness-to-communicate scale was composed of the following items:

Approach-Avoidance

1. I am afraid to speak up in conversations
2. I am afraid to express myself in a group
3. I talk less because I'm shy
4. I talk a lot because I'm not shy
5. I find it easy to make conversation with strangers
6. I'm nervous when I have to speak to others
7. I have no fears about expressing myself in a group
8. I avoid group discussions
9. I like to get involved in group discussions

Reward

1. I believe my friends and family understand my feelings
2. My friends and family listen to my ideas and suggestions
3. My family doesn't enjoy discussing my interests and activities
4. My friends and family don't listen to my ideas and suggestions

Items Dropped:

1. My friends seek my opinions and advice
2. I think my friends are truthful with me
3. I don't think my friends are honest in their communication with me

6. Rosenthal et al. (1979, p. 33) cite psychometric reasons for the design and choice of scenarios which produce an average accuracy score of 75%. Given a procedure which requires choosing between two alternative descriptions, this average accuracy is midway between chance decoding accuracy (50%) and complete accuracy

(100%).

7. The relational messages scale was composed of the following items:

Emotional Arousal:

1. He/she was frustrated with me
2. He/she emphasized disagreement
3. He/she was comfortable interacting with me
4. He/she felt very tense talking with me
5. He/she showed no hostility toward me
6. He/she tried to make the interaction informal

Intimacy:

1. He/she wanted me to trust him/her
2. He/she expressed attraction toward me
3. He/she tried to establish good rapport between us
4. He/she created a sense of closeness between us
5. He/she made our conversation seem intimate
6. He/she seemed not to care if I like him/her

Nonimmediacy:

1. He/she communicated coldness rather than warmth
2. He/she made our conversation distant
3. He/she made the conversation seem superficial
4. He/she was very unemotional
5. He/she was intensely involved in our conversation
6. He/she was bored by our conversation

Dominance:

1. He/she wanted to dominante the interaction
2. He/she tried to control the interaction
3. He/she attempted to persuade me
4. He/she was competitive
5. He/she communicated aggressiveness
6. He/she tried to win my approval

Items Dropped:

1. He/she tried to establish good rapport between us
2. He/she tried to make the interaction informal

8. The loss of voice recordings was due to mechanical, interviewer and experimenter error. Mechanical error occurred in the form of malfunctioning microphones, early in the experiment. Interviewer error consisted of failure to accurately record identification of respondent for subsquent matching to responses from other data collection waves and to voice recordings. Experimenter error involved mistakes in operating the recording equipment. These errors were random and assumed to produce no systematic bias in the vocal characteristics ratings.

9. The vocal characteristics scale was composed of the following items:

Pleasantness:

1. Unexpressive-Expressive
2. Anxious-Calm
3. Stiff-Natural
4. Cold-Warm
5. Unpleasant-Pleasant

Assertiveness:

1. Submissive-Dominant
2. Slow-Fast

10. Exploratory and confirmatory factor analysis was performed using the PACKAGE program developed by Hunter, Cohen and Nicol (1975). This procedure employs an ordinary-least-squares technique for estimating factor loadings.

11. The internal consistency test (Hunter, 1977) involves the generation of a predicted inter-item correlation matrix using the following formula:

$$r_{AB} = r_{TA} \times r_{TB}$$

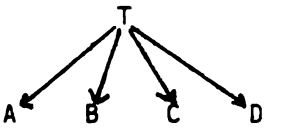
where,

$r_{AB}$ = correlation between items A and B in factor T

$r_{TA}$ = factor loading of item A on factor T

$r_{TB}$ = factor loading of item B on factor T

This formula is based on the following causal model:




The resulting predicted matrix is subtracted from the obtained matrix, producing a deviation matrix. This latter matrix is examined for deviations significantly different from zero (in the present study, $r = .12$, $n = 272$, $p<.05$). By chance alone, 5% of the deviations will be significant. If more than 5% are significant, items with significant deviations are dropped from the factor, and confirmatory factor analysis is recalculated on the remaining items. The process is repeated until less than 5% of the deviations are significant.

The parallelism test (Hunter, 1977) involves essentially the same procedure, except the predicted matrix is generated using the

following formula:

$$r_{AX} = r_{AT1} \times r_{T1T2} \times r_{XT2}$$

where,

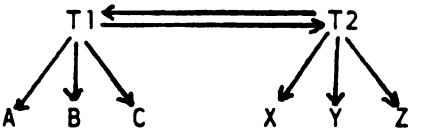
$r_{AX}$ = correlation of item A in factor T1 with item X in factor T2

$r_{AT1}$ = factor loading of item A on factor T1

$r_{T1T2}$ = correlation between factors T1 and T2

$r_{XT2}$ = factor loading of item X on factor T2

This formula is based on the following causal model:




Production of a deviation matrix and examination for significant deviations procedes as in the test for internal consistency.

12. An a priori criterion level of .05 was set for all tests. Except for tests of research questions, all statistical tests were one-tailed.

13. The analysis of variance technique employed was the classical experimental procedure which assumes equal cell size. Cell sizes, though unequal in the present experiment, were (1) proportional to the marginal frequencies and (2) resulted from factors independent of the experimental manipulation. Hence, the main effects could be considered orthogonal (Winer, 1971). Further, the sum of squares for each main effect, when added together, deviated only

slightly from the total sum of squares for main effects. The extent of deviation is an indicator of the lack of orthogonality of main effects due to unequal cell sizes. The small deviation in both the ANOVA on voice image and on hours donated indicated that the assumption of orthogonality was valid and the classical experimental model could be employed.

14. When three or more variables are related such that one affects the second which in turn affects the third (A$\longrightarrow$B$\longrightarrow$C), the correlation between A and C ($r_{AC}$) is equal to the product of the correlation between A and B ($r_{AB}$) and the correlation between B and C ($r_{BC}$) (Kenny, 1979). That is,

$$r_{AC} = r_{AB} \times r_{BC}$$

Hence, $r_{AC}$ by neccessity is less than either $r_{AB}$ or $r_{BC}$ unless either of the latter is equal to one.

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# APPENDICES

# Appendix A

## Pretest Questionnaire

NAME: _____

TELEPHONE NUMBER: _____

STUDENT NUMBER: _____

Since this session is designed to screen participants for a future research project, please fill in your name and telephone number, as well as your student number, so that we can contact you, if you are chosen to participate. Your responses in this session will be held in strict confidence and your name and phone number will be separated from them when the responses are keypunched into the computer.

The following set of statements deals with your communication with others. In each case, please indicate the degree to which you agree or disagree with the statement. If you strongly agree with a statement, circle 1. If you moderately agree with a statement, circle 2. If you slightly agree with a statement, circle 3. If you neither agree nor disagree with a statement, circle 4. If you slightly disagree, circle 5. If you moderately disagree, circle 6. Finally, if you strongly disagree, circle 7.

1. I'm afraid to speak up in conversations.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

2. I'm afraid to express myself in a group.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

3. I believe my friends and family understand my feelings.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

4. I talk less because I'm shy.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

5. During a conversation, I prefer to talk rather than listen.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

6. I don't ask for advice from family or friends when I have to make a decision.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

7. I talk a lot because I'm not shy.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

8. I find it easy to make conversation with strangers.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

9. My friends seek my opinions and advice.
   Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

10. I think my friends are truthful with me.
    Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

11. I feel nervous when I have to speak to others.
    Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

12. My friends and family listen to my ideas and suggestions.
    Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

13. I have no fears about expressing myself in a group.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

14. I don't think my friends are honest in their communication with me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

15. I avoid group discussions.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

16. Talking to other people is just a waste of time.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

17. My family doesn't enjoy discussing my interests and activities with me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

18. Other people are friendly only because they want something out of me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

19. My friends and family don't listen to my ideas and suggestions.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

20. I like to get involved in group discussions.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

The following set of statements deals with your relationships with others. Using the same 1 to 7 scale as before, please indicate the degree to which you agree or disagree with each statement.

21. When I'm introduced to someone new, I don't make much effort to be liked.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

22. I prefer a leader who is friendly and easy to talk to over one who is more aloof and respected by his followers.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

23. When I'm not feeling well, I would rather be with others than alone.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

24. If I had to choose between the two, I would rather be considered intelligent than sociable.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

25. Having friends is very important to me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

26. I would rather express open appreciation to others most of the time than reserve such feelings for special occasions.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

27. I enjoy a good movie more than a big party.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

28. I like to make as many friends as I can.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

29. I would rather travel abroad starting my trip alone than with one or two friends.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

30. After I meet someone I did not get along with, I spend time thinking about arranging another, more pleasant meeting.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

31. I think that fame is more rewarding than friendship.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

32. I prefer independent work to cooperative effort.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

33. I think that any experience is more significant when shared with a friend.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

34. When I see someone I know walking down the street, I am usually the first one to say hello.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

35. I prefer the independence which comes from lack of attachments to the good and warm feelings associated with close ties.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

36. I join clubs because it is such a good way of making friends.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

37. I would rather serve in a position to which my friends had nominated me than be appointed to an office by a distant national headquarters.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

38. I don't believe in showing overt affection toward friends.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

39. I would rather go right to sleep at night than talk to someone else about the day's activities.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

40. I have very few close friends.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

41. When I'm with people I don't know, it doesn't matter much to me if they like me or not.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

42. If I had to choose, I would rather have strong attachments to my friends than have them regard me as witty and clever.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

43. I prefer individual activities such as crossword puzzles to group ones such as bridge or canasta.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

44. I am much more attracted to warm, open people than I am to stand-offish ones.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

45. I would rather read an interesting book or go to the movies than spend time with friends.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

46. When traveling, I prefer meeting people to simply enjoying the scenery or going places alone.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

47. I sometimes prefer being with strangers than with familiar people.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

48. If I don't enjoy a party, I don't mind being the first one to leave.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

49. I would be very hurt if a close friend should contradict me in public.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

50. When a group is discussing an important matter, I like my feelings to be known.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

51. I tend to associate less with people who are critical.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

52. I often visit people without being invited.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

53. I don't mind going some place even if I know that some of the people there don't like me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

54. I try to feel a group out before I take a definite stand on a controversial issue.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

55. When two of my friends are arguing, I don't mind taking sides to support the one I agree with.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

56. If I ask someone to go someplace with me and he/she refuses, I'm hesitant to ask her/him again.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

57. I am cautious about expressing my opinions until I know people quite well.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

58. If I can't understand what someone says in a discussion, I will let it pass rather than interrupt to ask him to repeat it.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

59. I enjoy discussing controversial topics like politics and religion.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

60. I feel uneasy about asking someone to return something he borrowed from me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

61. I criticize people openly and expect them to do the same.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

62. I can still enjoy a party even if I find that I am not properly dressed for the occasion.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

63. I sometimes take criticisms too hard.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

64. If someone dislikes me, I tend to avoid her/him.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

65. It seldom embarrasses me to ask someone for a favor.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

66. I seldom contradict people for fear of hurting them.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

67. I am very sensitive to any signs that a person might not want to talk to me.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

68. Whenever I go somewhere where I know no one, I always like to have a friend come along.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

69. I often say what I believe, even when it alienates the person with whom I am speaking.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

70. I enjoy going to parties where I don't know anyone.
Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

The next set of items assess your ability to decode nonverbal vocal cues. To do this, you will listen to a series of short vocalizations. The voices have been filtered, so that you will only hear the vocal sounds not the words. After listening to each scene, you are to indicate which of the two labels best describes the scene you just heard by circling the letter next to that label. If you have any questions, please raise your hand and ask before we begin.

1. A. Criticizing someone for being late
   B. Helping a customer

2. A. Criticizing someone for being late
   B. Talking about the death of a friend

3. A. Admiring nature
   B. Asking forgiveness

4. A. Expressing motherly love
   B. Nagging a child

5. A. Ordering food in a restaurant
   B. Criticizing someone for being late

6. A. Expressing gratitude
   B. Expressing motherly love

7. A. Expressing jealous anger
   B. Talking to a lost child

8. A. Talking about one's wedding
   B. Talking about one's divorce

9. A. Nagging a child
   B. Saying a prayer

10. A. Expressing gratitude
    B. Expressing strong dislike

11. A. Talking about one's wedding
    B. Threatening someone

12. A. Expressing gratitude
    B. Threatening someone

13. A. Talking to a lost child
    B. Expressing deep affection

14. A. Expressing deep affection
    B. Admiring nature

15. A. Expressing motherly love
    B. Helping a customer

16. A. Criticizing someone for being late
    B. Helping a customer

17. A. Expressing jealous anger
    B. Criticizing someone for being late

18. A. Expressing jealous anger
    B. Helping a customer

19. A. Admiring nature
    B. Returning faulty item to a store

20. A. Saying a prayer
    B. Ordering food in a restaurant

21. A. Expressing motherly love
    B. Nagging a child

22. A. Helping a customer
    B. Trying to seduce someone

23. A. Talking to a lost child
    B. Helping a customer

24. A. Talking about the death of a friend
    B. Talking to a lost child

25. A. Asking forgiveness
    B. Leaving on a trip

26. A. Expressing deep affection
    B. Returning faulty item to a store

27. A. Leaving on a trip
    B. Saying a prayer

28. A. Expressing strong dislike
    B. Ordering food in a restaurant

29. A. Talking about one's wedding
    B. Criticizing someone for being late

30. A. Talking about one's divorce
    B. Trying to seduce someone

31. A. Talking to a lost child
    B. Talking about the death of a friend

32. A. Asking forgiveness
    B. Expressing gratitude

33. A. Expressing jealous anger
    B. Saying a prayer

34. A. Trying to seduce someone
    B. Expressing gratitude

35. A. Ordering food in a restaurant
    B. Returning faulty item to a store

36. A. Expressing jealous anger
    B. Talking about one's divorce

37. A. Threatening someone
    B. Talking about one's wedding

38. A. Admiring nature
    B. Leaving on a trip

39. A. Talking to a lost child
    B. Criticizing someone for being late

40. A. Expressing motherly love
    B. Expressing gratitude

# Appendix B

## Experimental Questionnaire

NAME OF RESPONDENT: _____

NAME OF INTERVIEWER: _____

INTRODUCTION/SCREENER

HELLO, MY NAME IS _____ . I'M CALLING FROM THE DEPARTMENT OF COMMUNICATION. MAY I PLEASE SPEAK TO (name of respondent) .

(If respondent must get on the phone, repeat introduction then:)

(If already on phone:) WE'RE CONDUCTING A SURVEY OF ATTITUDES TOWARD COMMUNICATION RESEARCH PARTICIPATION AND OUR RECORDS INDICATE THAT YOU HAVE PARTICIPATED IN THE PAST. YOUR NAME HAS BEEN CHOSEN AT RANDOM TO REPRESENT THE VIEWS OF ALL COMMUNICATION STUDENTS.

RESEARCH PARTICIPANT SURVEY

1. IN THE LAST YEAR, HOW MANY HOURS HAVE YOU DONATED TO COMMUNICATION RESEARCH?

Hours: _____

2a. WHAT CLASS OR CLASSES WERE YOU ENROLLED IN WHEN YOU PARTICIPATED?

| | |
|---|---|
| COM 100 | 1 |
| OTHER COM CLASS | 5 |
| NOT SURE/DK | 6 |

2b. WHAT IS THE SECTION NUMBER OF THAT COURSE?

(If DK/Not Sure:) WHAT IS THE NAME OF THE INSTRUCTOR?

Section Number: _____

(Record "No/Not Sure" as "00")

Instructor Name: _____

3. DID YOU RECEIVE EXTRA-CREDIT FOR PARTICIPATING IN THIS RESEARCH?

| | |
|---|---|
| Yes | 1 |
| No | 2 |
| Not Sure | 3 |

4. HOW DID YOU FIND OUT ABOUT THE RESEARCH? DID YOUR INSTRUCTOR ANNOUNCE IT; DID THE EXPERIMENTER ANNOUNCE IT; DID YOU SEE A POSTING; DID YOU HEAR ABOUT FROM A FRIEND IN THE CLASS; OR WHAT?

| | |
|---|---|
| Instructor Announcement | 1 |
| Experimenter Announcement | 2 |
| Posting | 3 |
| From A Friend | 4 |
| Other | 5 |
| Not Sure/DK | 6 |

5. ON A SCALE OF 0 TO 20 HOURS, HOW MANY HOURS WOULD YOU BE WILLING TO DONATE TO COMMUNICATION RESEARCH DURING THIS QUARTER?

(If Not Sure:) CAN YOU TAKE A GUESS AT HOW MANY?

Hours: _____

6. NOW I AM GOING TO READ YOU A SERIES OF WORDS OR PHRASES THAT CAN BE USED TO DESCRIBE YOUR RESEARCH EXPERIENCE. FOR EACH PAIR OF WORDS OR PHRASES I READ, I WANT YOU TO TELL ME HOW YOU VIEW YOUR EXPERIENCE. TO DO THIS I WANT YOU TO USE A SCALE FROM 1 TO 5, THAT IS, YOU WILL ANSWER 1, 2, 3, 4, OR 5, DEPENDING ON YOUR OPINION. IN EACH CASE, THE FIRST WORD OR PHRASE WILL BE THE HIGH END OF THE SCALE AND THE SECOND WILL BE THE LOW END.

THE FIRST/NEXT SET OF WORDS OR PHRASES IS _____ . IF (1st word/pharse) IS 5 AND (2nd word/phrase) IS 1, HOW DO YOU RATE YOUR RESEARCH EXPERIENCE?

| | | | | | |
|---|---|---|---|---|---|
| | Beneficial | | | | Worthless |
| BENEFICIAL-WORTHLESS | 5 | 4 | 3 | 2 | 1 |
| | Instructive | | | | Not Instructive |
| INSTRUCTIVE-NOT INSTRUCTIVE | 5 | 4 | 3 | 2 | 1 |
| | Fascinating | | | | Boring |
| FASCINATING-BORING | 5 | 4 | 3 | 2 | 1 |
| | Important | | | | Unimportant |
| IMPORTANT-UNIMPORTANT | 5 | 4 | 3 | 2 | 1 |
| | Pleasant | | | | Unpleasant |
| PLEASANT-UNPLEASANT | 5 | 4 | 3 | 2 | 1 |
| GIVES A SENSE OF ACCOMPLISHMENT-DOESN'T GIVE A SENSE OF ACCOMPLISHMENT | Sense 5 | 4 | 3 | 2 | No Sense 1 |
| | Complex | | | | Simple |
| COMPLEX-SIMPLE | 5 | 4 | 3 | 2 | 1 |

DEMOGRAPHICS

THESE LAST QUESTIONS ARE SIMPLY TO BREAK OUR INTERVIEWS INTO GROUPS.

7. WHAT IS YOUR G.P.A.

G.P.A.: _____
(Record "Not Sure" or "Refused" as "9.99")

8. WHAT I YOUR YEAR IN SCHOOL?

| | |
|---|---|
| Freshman | 1 |
| Sophomore | 2 |
| Junior | 3 |
| Senior | 4 |

THESE ARE ALL THE QUESTIONS I HAVE.
THANK YOU VERY MUCH FOR YOUR COOPERATION.

Record:

10. Sex of Respondent:

| | |
|---|---|
| Male | 2 |
| Female | 1 |

# Appendix C

## Follow-up Questionnaire

NAME OF RESPONDENT: _____

NAME OF INTERVIEWER: _____

## INTRODUCTION

HELLO MY NAME IS _____ . I'M CALLING FROM THE DEPARTMENT OF COMMUNICATION. MAY I PLEASE TALK TO (respondent's name) .

(If respondent must get on the phone, repeat introduction, then:)
(If respondent is already on phone:) OUR RECORDS INDICATE THAT YOU WERE INTERVIEWED TONIGHT ABOUT YOUR PARTICIPATION IN COMMUNICATION RESEARCH. WE ARE CHECKING THE INTERVIEWER'S PERFORMANCE BY TALKING WITH A FEW HER/HIS RESPONDENTS.

## RESPONDENT SURVEY

1. DID YOU COMPLETE THE SURVEY?

   Yes 1
   No 2

2. I WOULD LIKE TO READ YOU A SERIES OF STATEMENTS THAT DESCRIBE THE INTERVIEWER. FOR EACH STATEMENT I READ, PLEASE INDICATE WHETHER YOU AGREE OR DISAGREE. TO DO THIS I WOULD LIKE YOU TO USE A SCALE FROM 1 TO 5, THAT IS YOU WILL ANSWER 1, 2, 3, 4, OR 5, DEPENDING ON YOUR OPINION. IN EACH CASE, 1 MEANS YOU STRONGLY AGREE AND 5 MEANS YOU STRONGLY DISAGREE. THE FIRST STATEMENT IS: (read statement)

| | Strongly Agree | | | | Strongly Disagree |
|---|---|---|---|---|---|
| HE/SHE WAS FRUSTRATED WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WANTED TO DOMINATE THE INTERACTION. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WANTED ME TO TRUST HIM/HER. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE EMPHASIZED DISAGREEMENT BETWEEN US. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE EXPRESSED ATTRACTION TOWARD ME. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| HE/SHE TRIED TO CONTROL THE INTERACTION. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE TRIED TO ESTABLISH GOOD RAPPORT BETWEEN US. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE EXPRESSED ANGER TOWARD ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE ATTEMPTED TO PERSUADE ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE CREATED A SENSE OF CLOSENESS BETWEEN US. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS COMFORTABLE INTERACTING WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS COMPETITIVE. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE MADE OUR CONVERSATION SEEM INTIMATE. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS UNRESPONSIVE TO MY IDEAS. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS WILLING TO LISTEN TO ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE COMMUNICATED AGGRESSIVENESS. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE FELT VERY RELAXED TALKING WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE TRIED TO WIN MY APPROVAL. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE SEEMED TO CARE IF I LIKED HIM/HER | 1 | 2 | 3 | 4 | 5 |
| HE/SHE COMMUNICATED COLDNESS RATHER THAN WARMTH. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE FELT HOSTILE TOWARD ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE DIDN'T CARE IF I LIKED HIM/HER. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| HE/SHE MADE OUR CONVERSATION DISTANT. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS INTERESTED IN TALKING WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE FELT VERY TENSE TALKING WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE MADE THE CONVERSATION SEEM SUPERFICIAL. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE SEEMED TO DESIRE FURTHER COMMUNICATION WITH ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE SHOWED NO HOSTILITY TOWARD ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS VERY UNEMOTIONAL | 1 | 2 | 3 | 4 | 5 |
| HE/SHE SEEMED TO LIKE ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS NOT ATTRACTED TO ME. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS INTENSELY INVOLVED IN OUR CONVERSATION. | 1 | 2 | 3 | 4 | 5 |
| HE/SHE TRIED TO MAKE THE INTERACTION INFORMAL | 1 | 2 | 3 | 4 | 5 |
| HE/SHE WAS BORED BY OUR CONVERSATION. | 1 | 2 | 3 | 4 | 5 |

3. NOW I'M GOING TO READ YOU A SERIES OF WORDS THAT CAN BE USED TO DESCRIBE THE INTERVIEWER'S BEHAVIOR. FOR EACH PAIR OF WORDS I READ, I WANT YOU TO TELL ME HOW YOU VIEW THE INTERVIEWER'S BEHAVIOR. TO DO THIS I WANT YOU TO USE A SCALE FROM 1 TO 5, THAT IS, YOU WILL ANSWER 1, 2, 3, 4, OR 5, DEPENDING ON YOUR OPINION. IN EACH CASE THE FIRST WORD WILL BE THE HIGH END OF THE SCALE AND THE SECOND WILL BE THE LOW END.

THE FIRST/NEXT SET OF WORDS IS _____ . IF (1st word) IS 5 AND (2nd word) IS 1, HOW DO YOU RATE THE INTERVIEWER'S BEHAVIOR?

| | | | | | |
|---|---|---|---|---|---|
| | Expected | | | | Unexpected |
| EXPECTED-UNEXPECTED | 5 | 4 | 3 | 2 | 1 |
| | Good | | | | Bad |
| GOOD-BAD | 5 | 4 | 3 | 2 | 1 |
| | Appropriate | | | | Inappropriate |
| APPROPRIATE-INAPPROPRIATE | 5 | 4 | 3 | 2 | 1 |
| | Unbiased | | | | Biased |
| UNBIASED-BIASED | 5 | 4 | 3 | 2 | 1 |
| | Positive | | | | Negative |
| POSITIVE-NEGATIVE | 5 | 4 | 3 | 2 | 1 |
| | Usual | | | | Unusual |
| USUAL-UNUSUAL | 5 | 4 | 3 | 2 | 1 |
| | Offensive | | | | Inoffensive |
| OFFENSIVE-INOFFENSIVE | 5 | 4 | 3 | 2 | 1 |
| | Distracting | | | | Not Distracting |
| DISTRACTING-NOT DISTRACTING | 5 | 4 | 3 | 2 | 1 |

4. NOW I'M GOING TO READ YOU A SERIES OF WORDS THAT CAN BE USED TO DESCRIBE THE INTERVIEWER'S PERSONALITY. FOR EACH PAIR OF WORDS I READ, I WANT YOU TO TELL ME HOW YOU VIEW THE INTERVIEWER'S PERSONALITY. TO DO THIS I WANT YOU TO USE A SCALE FROM 1 TO 5, THAT IS, YOU WILL ANSWER 1, 2, 3, 4, OR 5, DEPENDING ON YOUR OPINION. IN EACH CASE THE FIRST WORD WILL BE THE HIGH END OF THE SCALE AND THE SECOND WILL BE THE LOW END.

THE FIRST/NEXT SET OF WORDS IS _____ . IF (1st word) IS 5 AND (2nd word) IS 1, HOW DO YOU RATE THE INTERVIEWER'S PERSONALITY?

| | | | | | |
|---|---|---|---|---|---|
| | Good Natured | | | | Irritable |
| GOOD NATURED-IRRITABLE | 5 | 4 | 3 | 2 | 1 |
| | Cheerful | | | | Gloomy |
| CHEERFUL-GLOOMY | 5 | 4 | 3 | 2 | 1 |
| | Friendly | | | | Unfriendly |
| FRIENDLY-UNFRIENDLY | 5 | 4 | 3 | 2 | 1 |
| | Bold | | | | Timid |
| BOLD-TIMID | 5 | 4 | 3 | 2 | 1 |
| | Verbal | | | | Quiet |
| VERBAL-QUIET | 5 | 4 | 3 | 2 | 1 |
| | Talkative | | | | Silent |
| TALKATIVE-SILENT | 5 | 4 | 3 | 2 | 1 |
| | Expert | | | | Inexpert |
| EXPERT-INEXPERT | 5 | 4 | 3 | 2 | 1 |
| | Intelligent | | | | Unintelligent |
| INTELLIGENT-UNINTELLIGENT | 5 | 4 | 3 | 2 | 1 |
| | Intellectual | | | | Narrow |
| INTELLECTUAL-NARROW | 5 | 4 | 3 | 2 | 1 |
| | Poised | | | | Nervous |
| POISED-NERVOUS | 5 | 4 | 3 | 2 | 1 |
| | Relaxed | | | | Tense |
| RELAXED-TENSE | 5 | 4 | 3 | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | Calm | | | | Anxious |
| CALM-ANXIOUS | 5 | 4 | 3 | 2 | 1 |
| | Honest | | | | Dishonest |
| HONEST-DISHONEST | 5 | 4 | 3 | 2 | 1 |
| | Sympathetic | | | | Unsympathetic |
| SYMPATHETIC-UNSYMPATHETIC | 5 | 4 | 3 | 2 | 1 |
| | Good | | | | Bad |
| GOOD-BAD | 5 | 4 | 3 | 2 | 1 |

## DEBRIEFING STATEMENT

THANK YOU FOR TAKING THE TIME TO ANSWER THESE QUESTIONS. BEFORE HANGING UP, I WOULD LIKE TO INFORM YOU THAT YOU HAVE JUST PARTICIPATED IN A STUDY OF THE EFFECTS OF NONVERBAL VOCAL CUES ON COMPLIANCE BEHAVIOR AND YOU WILL BE RECEIVING .05 EXTRA-CREDIT POINTS IN YOUR COM 100 CLASS FOR YOUR PARTICIPATION. THE FIRST TELEPHONE INTERVIEW WAS DESIGNED TO DETERMINE WHETHER YOUR RESONSES COULD BE INFLUENCED BY THE VOCAL CUES WHICH THE INTERVIEWER MANIPULATED. THIS SECOND INTERVIEW ASSESSED THE TYPES OF MEANINGS YOU ASSOCIATED WITH THESE CUES. BOTH OF THESE INTERVIEWS ARE RELATED TO THE TEST OF VOCAL DECODING ABILITY YOU COMPLETED LAST WEEK. I WANT TO ASSURE YOU THAT YOUR RESPONSES TO THE SURVEYS ARE ANONYMOUS AND ONLY THE MEMBERS OF THE RESEARCH STAFF WILL SEE THE ACTUAL QUESTIONNAIRES. ALSO, YOUR ESTIMATES OF HOW MUCH TIME YOU WOULD DONATE TO COMMUNICATION RESEARCH IN NO WAY COMMITS YOU TO PARTICIPATING IN ANY RESEARCH PROJECT NEXT QUARTER, THOUGH WE HOPE THAT YOU WILL DO SO IF ASKED. DO YOU UNDERSTAND THE PURPOSES OF THE STUDY? DO YOU HAVE ANY FURTHER QUESTIONS WHICH I MAY ANSWER?

DO WE HAVE YOUR PERMISSION TO USE YOUR RESPONSES IN THE EXPERIMENT?

(If Not Sure:) WE NEED YOUR PERMISSION TO USE THE DATA. WILL YOU GIVE YOUR PERMISSION?

Yes 1
No 2

I WOULD LIKE TO THANK YOU FOR YOUR TIME AND TO ASK YOU NOT TO DISCUSS THESE INTERVIEWS OR ANYTHING WHICH I HAVE SAID TO YOU WITH ANY OTHER STUDENTS IN YOUR CLASSES, SINCE WE ARE GOING TO BE CALLING OTHERS FOR THE NEXT FEW DAYS. IF YOU ARE INTERESTED IN OBTAINING INFORMATION ON THE RESULTS OF THIS STUDY, PLEASE GIVE YOUR NAME AND ADDRESS TO YOUR COM 100 INSTRUCTOR AND HE/SHE WILL SEE THAT THE EXPERIMENTER SENDS YOU THE INFORMATION, SOMETIME IN THE NEXT SIX MONTHS. THANK YOU AND HAVE A PLEASANT EVENING.